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Lieutt. Naval Surgeon

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THE

NAVAL SURGEON;

COMPRISING

THE ENTIRE DUTIES

OF

PROFESSIONAL MEN AT SEA.

TO WHICH ARE SUBJOINED,

A SYSTEM OF NAVAL SURGERY,

AND

A COMPENDIOUS PHARMACOPŒIA.

THE WHOLE ILLUSTRATED BY PLATES.

BY WILLIAM TURNBULL, A.M.

Fellow of the Medical Societies of London and Edinburgh, a Member of the Royal College of Surgeons, Surgeon to the Society for the Relief of the Ruptured Poor, Surgeon to the Loyal Britons, and formerly a Surgeon in His Majesty's Navy.

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TO THE

RIGHT HON. CHARLES GREY,

M. P. FOR NORTHUMBERLAND,

FIRST LORD OF THE ADMIRALTY,

&c. &c. &c.

SIR,

THE distinguished attention you have always given to every subject connected with the interest of the country, would be a sufficient inducement for me to request your acceptance of the present Work; but, placed as you now are, in the most important official department of the State, and one which may be justly considered as its bulwark and defence, the present publication claims in a peculiar manner the sanction of your Name, as a proper passport to introduce it to the Public Service, for the benefit of which it is entirely intended.

 That

That you may long fill the important station to which your merits have so justly raised you, is the sincere wish of,

SIR,

Your most obedient,

and very humble servant,

WILLIAM TURNBULL.

Greville-Street,
Hatton-Garden.

INTRODUCTION.

THE origin of Naval Medicine becomes properly connected with the progress of Navigation, and with the first attempts of mariners at long voyages. The navigation of the ancients was entirely of a coasting nature. In these excursions their ships never lost sight of land; and the short period during which they were occupied at sea at one time, could neither lead to extensive discoveries, nor give rise to new and peculiar diseases.

It is from modern times, then, that we are to commence our inquiries on this subject, when the daring spirit of adventure led to the discovery of a new world; when mankind ventured beyond the former narrow bounds, that circumscribed the ancient navigation, roaming the deep at large; and when, in consequence of their long residence on this element, and their being subjected to many inconveniences, new diseases, peculiar to this mode of life, attacked them, and required of course a treatment by new means. Thus an acquaintance with the new world, while it ex-

tended our knowledge, multiplied our evils, both in the progress to arrive at its discovery, and also in the discovery itself.

After the European nations had gained a footing in these distant regions, the intercourse between them and Europe was fully established. The frequency of naval diseases increased; and the attention of practitioners was then directed, to counteract their ravages, and employ every means of prevention as well as of relief. But the regular establishment of Navy Surgeons, as a distinct department, may be properly carried to a later period, when, in consequence of the jealousy of the European nations, with respect to their commerce and colonial possessions, warlike disputes at sea became frequent between them. Thus the calamities of war were added to the former inconveniences arising from disease.

The appointment of Surgeons to ships now became necessary; and the government of each country connected with maritime affairs, saw the necessity of cherishing this branch of practice. The improvements of naval tactics naturally led to it; the length of the voyage increased the size of the vessels, when compared with those of the ancients; and the improvements in the art of war by land produced the the same progress in the arts of destruction by sea. Hence the Surgeon became as necessary an appendage

appendage to a ship as the pilot; and thus Naval Medicine became as much an object by sea as military medicine by land.

The first appointment of Naval Surgeons in Britain, seems to have taken place at a very early period; but the regulations then enacted, were trifling and unimportant, from the low state of the marine, and from the very puerile nature of the engagements at Sea, compared with those of the present day.

As the British marine increased, and an alteration in the size and structure of the ships of war was made, the necessity for the attendance of Surgeons rose in proportion, and more than *one* was required for a single vessel, in order to preserve the health, and remove the diseases of the crew. The appointment of Mates came to be introduced; and the number of these supernumerary assistants was regulated in due time, according to the particular rates of the ships, as will appear by the Government Regulations, annexed to this.

Though the profession of a Navy Surgeon is certainly a liberal one, and requires the same extent of scientific knowledge as is necessary to practice in other situations, yet it was by no means held in the respectable light it ought to have been for a series of years. Its former connexion with the occupation of the barbers, might perhaps have some influence; and the appointment was con-

sidered as being something of the menial kind. The situation in which this highly respectable class of men was long placed, is justly delineated in the admirable novel of Roderick Random, from the pen of Smollet, who in the early part of his life had been engaged in this service.

The consequences of these prejudices so much injured the service, that it was in general only resorted to as a matter of unavoidable necessity, by those young men who could not procure any other employment; and it was accordingly abandoned so soon as any other opening, however indifferent, permitted them to retire.

The effect of this conduct, on the part of the Surgeons, was severely felt by Government at the breaking out of every war; and it was often difficult to procure the medical assistants wanted for the regular appointment of a fleet. Indeed, to such a degree has this often proceeded, that those who have not been six months in an apothecary's shop have been often appointed to situations which require much experience, and medical information. The Admiralty feeling, on many occasions, the hardships to which this prejudice against Naval Practice was carried by professional men, endeavoured at different times to make small alterations to their advantage, but never with such a liberality as to do away the cause of the complaint.

It

It was not until the commencement of the late war that new regulations, in respect to surgical appointments in the Navy, were adopted; and to the adoption of this measure it is to be regretted that Government were reluctantly brought, by the extensive mortality in the fleets, particularly in the West Indies, by the necessity they saw for the highest professional knowledge, to combat with success the attack of a new disease, which then appeared with aggravated symptoms, viz. the yellow fever; and by the really deficient number of medical men to supply the different stations of service. Previous to this, frequent applications, in the form of memorials, had been made on the subject; first by Mr. Renwick, and afterwards more fully and essentially by Dr. Trotter, who has pleaded with much energy and feeling, the cause of his brethren, and convinced Government, that its conduct relative to the Navy Surgeons was in every respect detrimental to the service and injurious to the country.

In consequence of these applications the rank of the Surgeons was fixed on a respectable footing, and their emoluments augmented in a similar proportion, as will appear from the following Regulations, drawn up by order of Government, at the commencement of the present year.

Office

Office for Sick and Wounded Seamen, the 28th January, 1805.

Particulars of such part of His Majesty's Order in Council of the 23d January, 1805, for improving the Situation of the Medical Officers of the Navy, as relate to such Officers serving on board Ships.

It is ordered, that the number of Assistants heretofore called "Surgeon's Mates," to be allowed to the Surgeons of His Majesty's ships, shall in future be regulated as follows:

First rate	3	Assistants
Second rate	3	ditto
Third rate	2	ditto
Fourth rate	2	ditto
Hospital ships	3	ditto
And all other ships entitled according to the existing regulation to bear Mates	1	ditto

That no person shall, in future, be appointed to serve as an Assistant to the Surgeon of any of His Majesty's ships, who shall not have been found qualified on examination to serve as Surgeon, or as first Assistant: that the pay of Assistants so qualified shall be 6s. 6d. a-day, besides the ship's provisions; with half-pay when reduced, at the rate of 2s. per day, provided they shall then have served two years subsequent to the date of this Regulation, and 3s. per day, if they shall have served three years from that date. That such Assistants shall be required to furnish themselves with such surgical instruments as the Commissioners for Sick and Wounded Seamen

men shall direct; and that they shall be rated on the ship's books, where the complement admits of more than one, according to their seniority on the list to be kept by the Sick and Wounded Board.

Whereas there are many Surgeon's Mates now serving on board His Majesty's ships, who have not obtained, and who may not for some time have an opportunity of obtaining the qualification before required, it is directed that such as serve as first or second Mates or Assistants, shall be allowed 5s. per day, and those rated third Mates, or Assistants, 4s. per day.

These three classes of Assistants shall not be required to provide instruments, nor shall they be allowed half-pay; but they shall nevertheless, on proving themselves duly qualified, be placed on the same list with the other Assistants, from the date of the first appointment they may receive after such qualification, and commence the time to be reckoned from half-pay from such appointment.

All Surgeons of the Navy who shall not have served in the whole six years, of which not more than three years time as Hospital Mate or Assistant Surgeon shall be allowed, shall receive, when employed, a full pay of 10s. per day; and when not employed, a half-pay of 5s. per day.

Surgeons of ships in active service, after having served six years, of which not more than three years time as Hospital Mate or Assistant Surgeon shall be allowed, shall be paid 11s. per day; their half-pay to be 6s. per day.

After having served ten years, allowing not more than three years as Hospital Mate or Assistant Surgeon, the Surgeon's full pay shall be augmented to 14s. per day, his half-pay to remain at 6s. per day.

Surgeons of receiving-ships, slop-ships, convalescent-ships, prison-ships, and all other ships, except hospital-

ships,

ships, employed only in harbour duty, shall be allowed full pay, 10s. per day, with half-pay according to the time of their service.

Surgeons appointed to hospital-ships shall receive a full pay of 15s. per day, unless in cases where, by the length of their service, they may have become entitled to a superior rate of payment; their half-pay to be regulated, as in the case of Surgeons of other ships, by the length of their service.

Every Surgeon in the Navy, excepting Surgeons serving on board receiving-ships, slop-ships, convalescent-ships, or any other ships than hospital-ships, employed only on harbour duty, shall, after twenty years service on full pay, including not more than three years time as Hospital Mate or Assistant Surgeon, be allowed 18s. per day: and after such length of service, all Surgeons, in whatever ships they may have served, shall have a claim to retire on a half-pay of 6s. per day; but if the cause of their retirement shall be ill health contracted in the service, and it shall be so certified by the Commissioners for Sick and Wounded Seamen, the rate of half-pay on such retirement, after twenty years actual service, shall be 10s. per day.

Every Surgeon in the Navy, after thirty years service, on full pay, including not more than three years as Hospital Mate or Assistant Surgeon, shall have an unqualified right to retire on half-pay, at the rate of 15s. per day.

That medicines and utensils shall be provided for the service of His Majesty's ships and vessels, at the expence of Government, in such proportions as shall from time to time be arranged by the Commissioners for Sick and Wounded Seamen; but the Surgeons shall be required to provide, at their own expence, such surgical instruments

instruments as shall be judged necessary by the said Commissioners.

No person shall be appointed Physician to a fleet or an hospital, who shall not have served as Surgeon at least five years; the daily pay of a Physician, on his first appointment, to be one guinea, his half-pay half-a-guinea.

When he shall have served three years as Physician to a fleet or an hospital, his full pay shall be one guinea and a half per day, his half-pay 15s. per day.

The full pay of a Physician, who shall have served in that capacity more than ten years, shall be two guineas per day, his half-pay one guinea per day.

That Physicians, when a residence is not provided for them, shall be allowed one guinea per week lodging money.

To the Widows of Physicians and Surgeons, such a pension shall be allowed as the Lords Commissioners of the Admiralty shall think it right to grant.

None of the officers before mentioned, who shall retire from their respective employments without the approbation of the Commissioners for Sick and Wounded Seamen, or who shall refuse to serve when called on, if judged capable of service, shall be allowed to receive half-pay, nor shall their names remain on the Naval List. Their Widows will not in consequence be entitled to any pension.

No officer, of whatever description, shall be entitled to any of the advantages arising from this regulation, who shall not have served during the present war, or until he shall have satisfied the Commissioners for Sick and Wounded Seamen of his inability to serve, but such persons shall be permitted to remain on the same establishment on which they may now respectively happen to be.

Having

Having thus traced the progress of Naval Surgery to the present time, it will be proper to consider next, those writers who have contributed their observations and instructions on this important branch of medical science.

The first production on this subject we meet with in Britain, is a Treatise by Dr. Cockburn, on the Diseases of Seamen, published in 1736. It contains a short and distinct account of what was then known on this head; and, as the first attempt of the kind, deserves the fullest commendation.

From this time no other work appeared, till the year 1764, when a translation of Dr. Roope's inaugural thesis on the maladies of seamen was printed. This publication is much more complete than the preceding one. It contains a very accurate account of the mode of life of the Dutch seamen, from which many useful hints have been taken by after writers. Dr. Roope's work is chiefly applicable to the merchant service. It will still be perused with considerable advantage, although it is in a great measure superseded by the works of posterior authors.

At this time the study of Nautical Medicine may be said properly to have begun. Previous to it, Captain Cooke had accomplished a part of his voyages on discovery, and shewn how much could be done to counteract the effects

effects of scurvy, heretofore the scourge and terror of a sea life. His opinions were readily adopted by the industrious and accurate Dr. Lind, whose work was now published. It contains all the information of preceding writers, joined with his own extensive experience and observation in Nautical Practice. In comparing this treatise with the works of succeeding writers, the merit of its author will stand in a still more conspicuous view, as many of the improvements brought forward at a later period will be found to have been originally drawn from this source. This first work of Dr. Lind was followed by another of equal importance, namely, his account of the diseases incident to Europeans in warm climates; a work which contains the history and treatment of the diseases of tropical climates in the most complete and perfect manner. Although later experience may have altered some parts of the practice, it is a publication which will always be read with interest and satisfaction by every practitioner.

Previous to Dr. Lind's publication on tropical diseases, two smaller treatises had appeared, one by Dr. Tennant, in 1742, and the other by De Monchey, in 1762. From each of these works some useful observations may be drawn, with respect to the history and operation of local causes in the production of tropical maladies.

But

But their mode of treatment is now antiquated, and cannot be followed by the modern Surgeon.

After Dr. Lind, Dr. Miller's medical works successively appeared; and part of this author's labours were devoted to the consideration of Naval Diseases. In his treatment, Dr. Miller seems to have been an enthusiast for the bark and antimony, without sufficient discrimination; and it is to be regretted, that when he wrote the treatise alluded to, he wanted that practical experience which could alone give it value.

In 1775 appeared Dr. Robertson's Observations on Fevers, and the other Diseases which occur in Voyages to Africa and the West Indies. This work is the result of much experience in a warm climate, and contains an accurate journal of the diseases which occurred in three voyages in these regions, with the practical remarks of the author on their treatment. This journal is accompanied by a regular statement of the weather, and a view of the increase and decrease of the different maladies corresponding to the changes in it. Among the diseases, the great mortality will be found to have arisen from fevers. The bark, with acids, appears to be his favourite practice in their cure. The use of bark, as a preventative of contagion, seems to have been first recommended by Dr. Robertson, before it was introduced to public notice by Dr. Lind. The keeping of regular journal

nals of the disease that occur, and their mode of treatment, is recommended by this experienced physician, who now superintends Greenwich Hospital, to the attention of junior Surgeons.

The next work of real estimation which comes into review, is Dr. Blane's Journal, kept by him as Physician to the fleet under Lord Rodney in the West Indies. It contains the experience of three years on an extensive field, and is the production of a Physician of sound judgment, of much professional knowledge, and of accurate discernment. The first part of it contains the account of the diseases of the fleet, regularly and attentively minuted. On this basis the Doctor founds his observations; and he has thence made deductions on the best means of preserving the health of Seamen, enlarging on the principal points which Dr. Lind had before treated, and adding several others newly introduced. The last part of his work respects the history and treatment of tropical diseases, principally considered as they are epidemic in a fleet. Here he displays much experience and acquaintance with the different modes of practice; and, from a perusal of the whole, the young practitioner will derive the highest advantage.

It would be improper to omit a small publication which appeared at this time, by a Navy Surgeon, Mr. Fletcher, on the health of Seamen.

It contains many new suggestions on this subject, which deserve attention, and have been adopted in some degree by later writers. Several good observations occur, particularly on the article of diet. On the whole, it is a treatise of considerable merit, and its perusal will furnish many important hints which a young practitioner may improve upon.

The breaking out of the late war, and the mortality which attended our operations in the West Indies, both in our Military and Naval departments, produced a number of writers on the health of Seamen, and the treatment of their diseases in that quarter.

The first work we shall notice is Dr. Mosely's Treatise on Tropical Diseases, published in 1792. In this treatise are to be found many good observations, joined with some whimsicalities of the author. As Dr. Mosely's work respects more the health of the Army than that of the Navy, it is not so applicable to our present subject as the publications of later writers.

Some time previous to the publication of Dr. Mosely's work, appeared one of greater importance, from the pen of the late Dr. Clark, then Surgeon of an East Indiaman. It is entitled A Treatise on the Diseases incident to Europeans in long Voyages. It is a publication of considerable merit, the author of which improves on the original idea

ideas of Dr. Lind. Bark seems to be with him a very favourite remedy, which he carries perhaps to an extravagant length, and which the experience of other writers does not entirely sanction. To him we are indebted for an accurate detail of the first practice with calomel in dysentery, which has been carried since to such a length, and extended to many other diseases.

After Dr. Clark, Mr. Renwick's Observations on the Means of Preserving the Health of Seamen, may be mentioned. It contains nothing new; and the author is better known by his Memorial, and exertions to ameliorate the condition of Naval Surgeons, as already noticed.

Another publication, in which little occurs to be stated, is Gillespie on the means of improving the Health of Seamen; and likewise his treatise on Diseases in a voyage to Tropical Climates. They may be both read with advantage by Naval Surgeons. The matters of which they treat are very well detailed; though they add nothing new to our stock of information from preceding writers.

But while we pass over these smaller publications with a slight observation, our attention is arrested by one of a different nature, which claims the highest commendations.

It is the production of Dr. Trotter, Physician to the fleet under Lord Howe, who entered the service with an ardent desire to use every means

of improving the science of medicine, both by his own observations and experience, and by kindling an enthusiasm among the Naval Practitioners to second his efforts. Like Dr. Blane, he has presented us with an accurate journal of the state of the fleet during the time of his services. His treatment of the various diseases, of the particulars of which this journal is composed, is detailed with correctness and judgment, and his opinions, which cannot fail to carry great weight, are supported by the concurring testimonies of the different Navy Surgeons, whose correspondence he has inserted, employed with him in the same line of duty. By this publication of Dr. Trotter, the real means of counteracting febrile contagion have been reduced to an almost mathematical nicety. The citric acid has been also established as a certain specific in the cure of scurvy, in preference to any other means; and many subordinate parts of Naval Practice, which former writers had not brought to a decided issue, are now explained with certainty and precision.

To these advantages, arising from Dr. Trotter's exertions, may be added, the example which his conduct has diffused through the service, and the turn for observation which has accordingly so greatly distinguished the Surgeons of the fleet during the late and present wars.

We have omitted to mention here, the numerous

rous small and detached tracts on scurvy, by different writers. In the following publication we have taken every advantage of them; and the merit of the whole is included in Dr. Trotter's three volumes, under the title of *Medicina Nautica*.

It may also be expected, from the title, that we should take notice of two small publications on the present subject. The first is Aiken's Navy Surgeon, brought forward in the year 1742. It is, however, but a small, superficial work, and includes only the surgical part, adapted to the early time when it was written; while it is to be recollected, that Medical Surgery, more than Surgery itself, is wanted at sea. The other work, entitled Northcote's Marine Practice of Physic and Surgery, is more suited than the former to the objects required by a practitioner at sea, and was certainly useful at the time it was produced: but it is now obsolete, and the original plan is not sufficiently comprehensive.

Such is a view of the principal authors to whom we are indebted for our knowledge and acquirements on Nautical Medicine. In order to conclude the subject in a suitable manner, it may not be amiss that the young practitioner, on entering the service, should be made acquainted with the class of men to whom his labours are to be devoted in the sequel. Secluded, as it were, from the rest of society, with which

they only mix occasionally, they are to be regarded as a distinct and insulated body; and we cannot offer a better picture of them than the one drawn by the very able pen of Dr. Trotter, in the following characteristic manner.

"The character of a British Seaman exhibits so many striking singularities, which blend themselves so much with all his habits, that a thorough acquaintance with them becomes necessary to both Officer and Physician, in their respective stations. These peculiarities are the offspring of a sea life, from the little connexion it affords with the common manners of society. The love of adventure and enterprise that so soon discovers itself in his boyish days, seems to prompt the first inclination for sea, a longing curiosity keeps it alive, and nothing but a voyage will at last satisfy the youthful Argonaut, to which the parent consents, in the hope that a life of danger and difficulty will soon sicken the inexperienced sailor, and make him wish to live at home. This, however, seldom happens; and the first cruize or voyage casts the die for a future sea life to the young adventurer. It is somewhat remarkable, that boys in inland towns should so often shew this early desire of going to sea. I have, however, seen it discover itself there in a very romantic manner, and terminate in an elopement, purposely to embark.

Among

Among boys of this description, the history of a broken sailor is accounted the finest piece of eloquence, and whenever he appears, the narration of his voyages, battles, and shipwrecks, are listened to with rapture. The voyages of Drake and Anson round the world, are famous in this way, and eagerly read by school-boys; but Robinson Crusoe has made more proselytes to these kinds of adventures than all other mariners: his story, from first to last, is so full of incident; in all his difficulties he shews so much courage, address, and ingenuity, that the young reader fancies himself the discoverer of some great kingdom; and his imagination wanders for ever in quest of an island. Even the English newspapers, now so generally circulated, have a wonderful effect in spreading this enthusiasm for a sea life: the number of well-fought actions between single ships, during the present war, will cherish it, and shape the fortune of future warriors; while the sublime manœuvre of piercing the French line by Earl Howe, will be equally appealed to at some future day by the historian and school-boy. In a country like ours, which owes her security to a Naval force, we see a victory at sea celebrated above all others; it rouses the *amor patriæ* to the highest pitch of enthusiasm, and reminds a free people of their independence; because Nature has decreed that this is our element. The

names

names of our great Admirals are therefore revered as so many tutelary deities of our island—Hawke, Rodney, and Howe; and the heroes of the Granicus and Rubicon shrink into insignificance when compared with those of the 12th of April and 1st of June. Hence, from peculiar causes, the Naval Spirit of Great Britain descends, as it were, in hereditary succession.

"That courage which distinguishes our Seamen, though it is in some degree inherent in their natural constitutions, yet is increased by their habits of life, and by associating with men who are familiarized to danger, and who, from natural prowess, consider themselves at sea as rulers by birth-right. By these means, in all actions, there is a general impulse among the crew of an English man of war, either to grapple the enemy, or lay him close aboard. Frenchmen shudder at this attempt, and whenever it has been boldly executed on our part, they run from their quarters, and are never to be rallied afterwards. Nor does this courage ever forsake them; we have seen them cheering their shipmates, and answering the shouts of the enemy, under the most dreadful wounds, till, from loss of blood, they expired.

"It is only men of such a description that could undergo the fatigues and perils of a sea-life: and there seems a necessity for their being inured to it

it from an early age. The mind, by custom and example, is thus trained to brave the fury of the elements in their different forms, with a degree of contempt at danger and death, that is to be met with no where else, and which has become proverbial.

"Excluded, by the employment which they have chosen, from all society, but that of people of similar dispositions, the deficiencies of education are not felt; and information on general affairs is seldom courted. Their pride consists in being thought a thorough bred Seaman; and they look upon all landmen as beings of an inferior order. This is marked in a singular manner, by applying the terms of seamanship to every action of life, and sometimes with a pedantic ostentation. Having little intercourse with the world, they are easily defrauded, and dupes to the deceitful wherever they go: their money is lavished with the most thoughtless profusion; fine clothes for his girl, a silver watch and silver buckles for himself, are often the sole return for years of labour and hardship. When his officer happens to refuse him leave to go on shore, his purse is sometimes, with the coldest indifference, consigned to the deep, that it may no longer remind him of pleasures he cannot command. With minds uncultivated and uninformed, they are equally credulous and superstitious: the appearance of the sky,

sky, the flight of a bird, the sight of particular fishes, the sailing on a certain day of the week, with other accidents, fill their heads with omens and disasters. The true-bred Seaman is seldom a profligate character; his vices, if he has any, rarely partake of premeditated villany, or turpitude of conduct, but rather originate from want of reflection, and a narrow understanding. Hence he plays the rogue with an awkward grace, though the degree of cunning which he occasionally practises towards his creditors, bespeaks his art; but from them he has learned the way to over-reach; and it ought to be remembered, that they have a particular interest in emptying his pocket as quickly as possible; for his bargains with the world are limited to slop-seller and landlord. In his pleasures he is coarse, and in his person slovenly: he acquires little experience from past misfortunes, and is heedless of futurity. His conversation commonly turns upon his own profession; and his animadversions are almost confined to a ship, her various properties, such as sailing, rigging, &c.; yet the sailor has a wit of his own, and he translates all occurrences into his own phrases: cunns a horse when he rides; heaves the lead from the top of a stage-coach; and wings his enemy when he shoots away his steeringsail-halliards. Thus, his narrations are full of hyperboles, similies, and comparisons, and

and if he finds he can work upon the credulity of his hearers, he will frequently outdo De Foe, or Gulliver himself.

"Some new traits are engrafted on the character by coming on board a man of war, and are to be traced to the custom of impressing them. This is apt to beget a sulkiness of disposition, which is gradually overcome, when he recollects that he only resigns his own liberty for a season to become the champion of that of his country. It, however, often preserves a determination to watch every means for effecting his escape; it is also the source of numerous deceptions, by making him assume diseases, to be an object for invaliding. Hence he employs caustics to produce ulcers; inflates the urethra to give the scrotum the appearance of hernia; and drinks a decoction of tobacco to bring on emaciation, sickness at stomach, and quick pulse. Under trials of this nature there is exercise for both patience and discernment on the part of the Officer and Surgeon; but there is rarely occasion for punishment. A well-regulated ship soon reconciles all disaffection. This war has been singular for few desertions; and general punishments have scarcely been known in the Channel Fleet. His real diseases spring from causes peculiar to a sea-life: laborious duty, change of climate, and inclement

seasons,

seasons, bring on premature age, and few of them live to be very old.

" If such are the follies and vices of the Sailor, his virtues are of the finest cast. In the hour of battle he has never left his Officer to fight alone, and it remains a solitary fact in the history of war. If in his amours he is fickle, it is because he has no settled home to fix domestic attachments; in his friendships he is warm, sincere, and untinctured with selfish views. The heaviest of metals, as Sterne calls it, becomes light as a feather in his hands, when he meets an old shipmate or acquaintance under distress; his charity makes no preliminary conditions with its objects, but yields to the faithful impulse of an honest heart. His bounty is not prefaced by a common, though affected, harangue, of assuring his friend that he will divide with him his last guinea—he gives the whole; requires no security; and cheerfully returns to a laborious and hazardous employment for his own support. Were I ever to be reduced to the utmost poverty, I would shun the cold threshold of fashionable charity, to beg among Seamen; where my afflictions would never be insulted by being asked through what follies or misfortunes I had been reduced to penury."

PRELIMINARY DISSERTATION.

The late Regulations made by Government in the Medical Department of the Navy, now render it a situation of rank and emolument as anxiously sought after, as formerly it used to be rejected, or taken up as a matter of necessity. This being the case, the abilities of the Navy Surgeon should correspond with the munificence of the Legislature; and no person should be admitted to this official situation, who is not fully competent to the task he undertakes.

The education of Naval Practitioners is not always conducted in the liberal manner it ought; and the records of the late war afford abundant proofs, that while many of the Surgeons were distinguished by a thorough knowledge of their profession, and the display of much talent and observation, exerted for the best interests of the service, others were not only deficient in abilities, but wanted the requisite parts of knowledge they ought to have possessed.

The

The last fault, it is to be remarked, is equally applicable to the department of the Army; and so glaring was it known to be, that His Royal Highness the Duke of York found it necessary to break the regulation of that service, with a view to the appointment of certain practitioners, in order to repair the errors that had been committed.

The first object in the education of a Naval Surgeon, should be a proper acquaintance with anatomy, and particularly with that part of it connected with the distribution of the blood vessels. The treatment of gun-shot wounds, he must lay his account, is to form a principal part of his occupation; and the first point in undertaking that, is to understand the proper method of stopping effusions of blood, which he can only do by knowing where the vessel is situated which gives occasion to the hemorrhage. It is only from this knowledge that he can be able to judge of the extent to which an injury may proceed.

Nothing is more deceitful than the apparent state of a wound when first received. Trusting therefore to these appearances, and unacquainted with the structure of the part which forms the seat of the injury, he will be often led to form an opinion highly erroneous, and conduct himself in

in a manner that may prove fatal to his patients *.

If the study of anatomy is thus so essentially necessary as a fundamental part of his education, an acquaintance with botany and materia medica is highly useful. In the course of professional duties, he will often be obliged to touch at many countries that have been little explored; and before the arrival of the ship there, the stores may be so exhausted, owing to unexpected occurrences, that the men, in getting on shore, may be ready to lay hold of any vegetable production which may present itself, as a succedaneum for food. It is a botanist alone, then, on these unfortunate occasions, that can prevent them from falling into fatal errors. A taste for this science should therefore be cultivated by every Sea Surgeon, as he will thus be prepared to encounter any difficulties of situation that may occur, should shipwreck or other mischance throw him, and those under his care, on an unfrequented coast. By his knowledge of the materia medica, which may be considered as closely connected

* This is particularly the case in wounds of the head, which, often trifling and insignificant at first, frequently terminate in a fatal manner. This can only be prevented by a Surgeon being well acquainted with the structure of the brain, and the consequences to which the smallest injuries there often lead.

with

with botany, he will be enabled both to make a proper selection of what he ought to carry to sea with him, by way of medicine, and also chuse every article of the best quality, in which, from this knowledge, he cannot be mistaken. The propriety of this will strongly appear from numerous facts which are daily met with in practice. Many medicines are prescribed by the Physician, which, contrary to his well-founded expectations, shew no power in relieving the disease for which he has ordered them. On minute examination, he unhappily finds, too late, that the articles were either sophisticated, or prepared in a manner not suited to his views. By a proper information on the materia medica, this disappointment will be prevented with the Naval Surgeon, as he can be both the original selector of the articles for the medicine chest, and has also the preparation of them, when exhibited, attended to by himself, or compounded under his own eye.

In cultivating these preliminary sciences, chymistry must also come in for its share. So extensively useful are the principles of this science, that it enters into every part of life; and, at sea, on account of its being employed as a means of fumigation in ships, at least that division of it which consists in the production of gases, and also another part of it concerned in the purification of water, and the preservation of provisions.

An

An attention should be paid to it, no less sedulous than the other branches enumerated. Many of the most active remedies, it is also well known, are the effect of chemical operation, which renders the knowledge of this science of the highest estimation.

In conducting the education of a Naval Surgeon, it is perhaps of little consequence where his preliminary studies are entered upon. The schools of medicine are numerous, and the profession taught by many of the first abilities and experience in the healing art, both in the metropolis, and in other situations of the empire. One advantage, however, attends a regular commencement of study at a university, namely, that the student is there taught to entertain enlarged and scientific views of his subjects, which, in the more confined situation of an inferior seminary, he has neither the opportunities to do, nor is he so apt to imbibe them. It is for this reason that the University of Edinburgh has been so deservedly distinguished for the scientific acquirements of its medical pupils; and though in the metropolis a great display of abilities prevails among the teachers, still the course of study is seldom so beneficial to the student, from the want of that connexion among the different professional branches, which a university so happily possesses.

Contending, then, as we do, for the first com-

mencement of the Surgeon's career at an academical seat of learning, it will be proper to consider next, whether his after progress should proceed in the usual routine, or be conducted with a view to the cultivation of Naval Medicine and Surgery alone. It is a fact sufficiently notorious, that even in private practice, the circumscribing of the attention to particular walks of the profession alone, has been attended with the most beneficial effect to society, and produced, on the part of those exercising them, a discrimination in judging, and a superiority in treatment, which are not to be acquired when the attention is diverted to a great variety of objects, or to an extended field of different practice.

This fact, then, so well ascertained in the private exercise of the profession, we would wish to apply particularly to the preparation of Naval Surgeons, before their entrance into the service. Would it not, therefore, after a student has acquired some general knowledge of the extent of the service, be proper to limit his views in the finishing part of his studies, to the Naval Department alone; and, instead of his wasting his time in attending on the common Medical and Surgical Lectures, that an institution should be formed, by the appointment of Government, for completing the instruction of all such whose practic

practice is afterwards to be devoted to the Naval Department ?

It is well known to every Naval Surgeon, and he will readily vouch for the truth of it, that his first entrance on board of a ship was attended with much embarrassment, in consequence of his unacquaintance with the routine of duty, and the particular diseases at sea, however qualified he might be in the general knowledge of his profession. It would certainly, therefore, be much for the advantage of the service, that every Naval Hospital should be formed into a school for the formation of Naval Surgeons alone, or that no appointments should take place in the Navy till the candidates have finished a certain course of studies there. The plan of doing it would be perfectly easy. The Physicians and Surgeons to these hospitals are known to be men of much experience in the treatment of seamen's diseases. They are also men of general information and science, as their works, which on many occasions have done credit to themselves and to the country, abundantly shew.

Who, then, are so fit to prepare the young Surgeon for his future occupation, as those whose constant attention has been paid to Naval Practice, and who are placed in a situation where their instructions can be accompanied with the constant observation, by the student, of those

very diseases, and peculiar forms of practice suited to them, which it is his duty to acquire. We would therefore propose that lectures on Naval Medicine and Surgery should be given at the two great Hospitals of Haslar and Plymouth; that all Surgeons, before being admitted into the Navy, should be obliged to attend there for a certain period; and that a certificate of their attendance should be a necessary preliminary, in order to their passing for their appointments. The advantages of this are so clear, that it would be superfluous to enforce them by any arguments; and so far from being an additional expence to the State, the appointment of the Physicians and Surgeons should be connected with this condition of delivering the lectures gratis, in the manner pointed out. If this, or a similar plan, were adopted, it would also be proper that the examinations for the passing of Surgeons should be held at these Naval Seminaries; the superintendants there being certainly the best judges of the qualifications of pupils, as having been educated under their immediate eye, and also of the subjects most proper to examine them upon. With these advantages, a young Surgeon would enter the Navy perfectly qualified for every part of his duty, and equally experienced in the diseases of seamen, as if he had been years in the service.

In

In the preceding introductory part, we have had occasion to remark the great improvements which have been made in Naval Practice since the time of Dr. Lind, who may be justly styled the Father of Nautical Medicine. If we reflect how few the improvers of this branch have been, and what might have been expected, had a greater number exerted themselves in this field of observation and inquiry, it suggests another measure for extending the progress of this branch of medicine, equally practicable and equally advantageous to the service as the former. This is, that every Surgeon retiring on half-pay, along with his journals, which he delivers at present, should deposit such remarks on professional topics, as his experience may have furnished him with in the course of his service; and where these are highly worthy approbation, and point to useful improvements, that a certain reward and intimation of its satisfaction should be conferred on him by Government. This would lead, from the collection of useful facts and observations, to the highest improvements of which the science is capable. At present, the examinations for this department take place at the College of Surgeons, on certain days appointed for that purpose. When passed, Surgeons receive their appointment from the Commissioners of Sick and Hurt, who also examine them as to their qualifications: but

these examinations only take place on the general principles of Medicine and Surgery, not on those peculiarities which specially belong to Naval Medicine and Surgery, and for giving satisfaction on which, as we have already stated, the young student, from his mode of education, is perfectly unfit.

When a Surgeon has once entered upon his appointment, a regular plan, in the arrangement of the cases that come under his care, should be scrupulously adhered to. This he will find of the highest importance to himself; at the same time that the journals at sea, as they are at present kept, are generally imperfect in this respect*.

* This the Surgeon himself will be able to judge of by the plan from the Sick and Hurt Board, which is divided into no more than three parts, as here stated:

Men's names, ages, qualities, time when and where taken ill.	The history, symptoms, treatment, and daily progress of the disease or hurt.	When discharged to duty, died or sent to the hospital.

The

The best form of a journal is that originally planned by Dr. Fordyce, and since considerably improved by Dr. Haighton. It is, we confess, too extensive in its plan; but the judgment of the Surgeon will, no doubt, be able to select such parts of it as may suit his particular situation, and answer the purpose of giving a correct detail of the leading phenomena and treatment of the several cases which come under his management.

Name, disease, and history of the attack.	
Climate and season.	
Epidemics.	

Date.	Day of disease.	Seat and degree of local affection.	Countenance.	Pulse.	Respiration.	Skin.	Tongue.	Stomach.

Age, temperament, and constitutional peculiarities.	
Habits of life.	
Contingencies and occasional causes.	

Intestines.	Urine.	Sleep and intellects.	Regimen.	Miscellaneous observations.	Medicines.

To save the Surgeon the trouble of such a complex table, we shall endeavour to offer one, which we think will include all the circumstances that are necessary to be attended to in making up a correct report, both for his own information, and for that of the Board under which he is bound by the Regulations to act.

JOURNAL.

State of weather*.	Name and quality of the patient.	Age and habit.	Disease.	Present symptoms.	Progress of the Malady.	Mode of cure.	Issue of it, and remarks†.

* This article is particularly insisted upon by Dr. Robertson, of Greenwich Hospital, to shew the increase and decrease of diseases.

† This column should contain the peculiarities met with in the case.

From this view of the subject, and from the little attention hitherto paid to it, a work on the following plan is one which has been much called for. The Author has been induced to bring it forward, from a conviction long entertained by him of its necessity, and from his feeling the want of it so much himself, when a Surgeon in the Navy. The materials from which it is drawn, contain the observations of all the most approved writers on Naval Medicine and Surgery, whose works have been already noticed; and to these the Author has joined his own stock of experience on these subjects, embracing a service of some years, and during a particular attendance at Haslar Hospital, under the direction of the late Dr. Lind. The view he has taken of the subject, it will be seen, is an extensive one, it having been his aim to provide for every exigence of the service which may arise. By the detail into which he has entered, of the diseases of the different stations to which fleets are appointed, the practice will be greatly facilitated to the young Surgeon. He has endeavoured to impress as much as possible, what are the leading points to which a Navy Surgeon ought to direct his attention, and on an acquaintance with which, the success of his practice will depend. On the whole, this Work is presented to the public as a full Manual of what a Surgeon at Sea ought to have

in view, as his professional objects; and when it is considered as a new attempt, and that a similar plan has not been adopted by any preceding writer, it is hoped any defects will be overlooked in the general utility of the undertaking.

In its compilation, the Author is particularly indebted to the works of Doctors Lind, Blane, and Trotter, and to the smaller publications of many of the Surgeons who have distinguished themselves by their writings in the late war.

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PART III.

NAVAL PHARMACOPŒIA,

OR

DISPENSATORY,

UNDER THE DIVISIONS OF MEDICAL AND SURGICAL PHARMACY;

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THE

NAVAL SURGEON.

PART I.

NAVAL MEDICINE.

PREVENTION OF DISEASES AT SEA.

General Means of Prevention referred to—Air—Cleanliness—Clothing—Diet—Exercise, or Discipline.

AS the Navy of Britain has become, and is deservedly considered, the bulwark of the empire; the means which have rendered it formidable to surrounding nations, and even the scourge and terror, as has been alleged, of the world; so the health of those brave men on whom its existence depends, cannot be too zealously studied by those appointed to superintend that department.

Every professional man must allow, that it is much easier to prevent than cure disease; and,

the first object which every Surgeon, entering on the service, ought to have in view, is to make himself master of all the different means which have been found conducive to this great end, and which experience has sanctioned for that purpose.

The improvements that have been made on the subject of the health of seamen, have of late years been very great; and the best confirmation of this fact, is to be drawn from a comparison of the health of the British fleet with that of other nations.

The means which have been resorted to in order to produce such beneficial effects, will be best understood by arranging them under different heads; and we shall therefore treat them under the following divisions:—Of Air—Cleanliness—Clothing—Diet—and, Exercise, or Discipline.

OF AIR.

Composition of Air—state of it at sea—noxious qualities of land air by various impregnations—in cold climates hurtful to seamen by its moisture—circumstances in the state of ships favourable to the production of moisture—means proper to purify the atmosphere of a ship—free ventilation by opening the ports—the use of fires between decks, and in the lower parts of the ship—improvement of the stove for this purpose—attention to the drying of bedding and hammocks—state of the hold—selection of ballast—regulation of washing decks—caution in respect to the well—remarks on the situation of the kitchen—on uncovering the orlop—on the frequency of the watches—on the crowding of ships—regulation in this respect—birthing the watches—precautions where exposure to a tainted atmosphere is unavoidable in warm climates—use of internal medicines for this purpose—aromatics—bitters—stimulants—too free exposure to air, a cause of disease—peculiar and obscure qualities of the air—its effect in the production of disease.

Of all the powers necessary to the support of life, air is the one more immediately connected with our existence, and without its presence, life can scarcely be sustained for a moment. While the desire for food only takes place at particular times, a constant supply of this fluid is imperiously called for.—Hence every circumstance connected with it, is of the first im-

 portance,

portance, where an attention to health is concerned.

The composition of air has been successfully detected by chymistry: it consists, as every practitioner knows, of three parts, viz. *oxygen*, *azote*, and *carbonic acid*; and the different proportions of each of these principles, render it more or less calculated for the purposes of life.

At sea, the air, or, as it is commonly termed, the state of the atmosphere, is considered purer than on shore; and were every other circumstance alike favourable, it is certain that a residence on that element, would be more conducive to health than any other mode of life.

In proof of this, it has been observed by naval physicians, that, except the scurvy, diseases are less frequent at sea than on making land, or on coming into harbour.

The land air is in many situations rendered particularly noxious, by the different impregnations it receives from the woods, and morasses, as well as by other matters producing dangerous effluvia. These, though in the colder climates they are less to be dreaded, acquire a particular virulence when acted upon by heat. Hence the mortality that has been known to arise in the West Indies, and other warm climates, where ships have either anchored near to such stations, or where the men have been employed on shore,

on

on the necessary occupations of wooding and watering. At the same time it is remarkable, that the distance of even a few yards in anchoring in such situations, will often enable a ship to avoid this fatal contagion; and the great object, in all such cases, is to become acquainted with the extent of the influence of the noxious vapours, which proceed from the land.

In cold climates, the air is chiefly vitiated by being surcharged with moisture, rather than by any impure impregnation. This state of the air produces a general debility and relaxation of the system. It lays the foundation of obstructions, by checking the exudation from the skin; and, owing to the same cause, it especially disposes to scurvy, the great scourge of a sea life. Hence the sick list on ship-board, is more swelled in moist weather than at any other time.

Many circumstances contribute at sea, to increase the moisture of the surrounding atmosphere. Thus, ships built of new, or ill-seasoned wood, are found to be more unhealthy than others. Attention should, therefore, be particularly paid, that the wood of which ships is constructed, should be felled in winter; rather than in summer: it is thus rendered drier, firmer, and more compact. Another source of the moisture of a ship is the wetness of the hold, which diffuses a dampness over every part of the

vessel. The hold, therefore, should always be kept as dry as possible, and the pumps employed so frequently as never to allow the water to collect above a few inches. It would, indeed, be preferable, constantly to keep the hold nearly dry, were it not that putrid matter is apt to collect there, and that the accumulation of a certain quantity of water, to be afterwards pumped out, becomes necessary to wash off whatever is offensive. Another cause which adds greatly to the dampness of a vessel, if not properly attended to, is the ballast. If it be of a sandy or earthy nature, it readily soaks up the moisture and filth, which it retains; but if, on the contrary, proper shingle or pebble be collected, it allows the water, or fluid of any kind, to pass through it and subside: there is then less difficulty in washing it out.

On this subject of the production of moisture, even the washing of the decks, though necessary on the score of cleanliness, requires some limitation. In damp weather, it is clear that it should be seldomer resorted to than when the air is dry; and whenever it is attempted, the morning should be preferred for the purpose, to the end that the decks may dry in the course of the day.

To render the air of a ship, when at sea, completely healthy, the first step is to give a free

free ventilation to all parts of the vessel. For this purpose the ports should be kept open, whenever the weather will permit it to be done. The only objection to this measure is the exposure of the men, which must necessarily take place in cold climates. But where this is attended with bad consequences, fire will form a proper substitute, and answer the same end. By means of fire, a constant change of air ensues, from the draught to which it gives occasion; and though this cannot take place in all parts of the ship with convenience and safety, yet frequent fires between decks, or in the lower parts of the ship, will be found particularly useful.

This effect of fire might be greatly increased in a ship, by contriving the close stove in such a manner, that the length and direction of the flue might be so much extended, as effectually to absorb the moisture. By such a construction of the stove, less fuel would be requisite; and it could be employed at the same time in stormy weather, when open fires are impracticable *.

* The Medical and Physical Journal for the month of February 1800, contains, under the head of instructions on the means of maintaining the salubrity and purifying the air of the wards of hospitals, a description of Salmon's stove ventilator, which might, with every facility, and with the most salutary effects, be applied to ships.

This free ventilation should be especially employed for airing the hammocks and bedding, which should be regularly exposed between-decks for this purpose, particularly when bad weather has prevailed for some time.

In order to air them thoroughly, they should be unlashed, and this operation should take place in one part only of the ship at a time, and should gradually proceed through the whole, at the discretion of the superintendant. It is so much the more requisite, as the composition of seamen's beds is generally of flock, or old woollen rags, which are so apt to imbibe the seeds of disease. By thus airing them, all moisture will be removed, and the same agreeable sensation will take place, on again using them, as is felt on a change of linen.

The necessity of ventilation will appear still stronger in the ships of war than in any others, on account of the number of men which in them are unavoidably crowded together.

When we consider how soon, if he be closely confined, the air in which any person breathes becomes unfit for respiration, without a fresh supply, the propriety of this measure will be evident; and it will be also apparent, that too great attention cannot be paid to what are called *good births* for the men, by those who have the direction of the service.

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The force of this observation has indeed been so much felt, that certain regulations have been adopted to prevent *crowding* in ships of war. They consist in birthing the watches alternately, by which is meant, that the one half of each watch should be stationed below, at a different side from the other half. By this expedient the men do not sleep so close, nor are they so much exposed to the breath, and to the heating influence of each others' bodies; another advantage attending this practice is, the preserving of the trim of the ship. From these circumstances we are led to infer, that it is not the size of the ship which renders her sickly, or otherwise, but the state of her hands with regard to their accommodations. Wherever they are huddled together, sickness will be the unavoidable consequence, and it will hardly be possible to prevent the air of such a vessel being contaminated. Guard-ships and receiving-ships are in general large, and the crews of such vessels are commonly found more healthy than an equal proportion of persons on shore.

In recommending this free ventilation of ships, it is proper to remark, that certain parts more particularly stand in need of this operation. Nothing is more common, than the destruction of the lives of some of the men by the foul air of the well. Whenever, therefore, it is necessary to

to descend, a candle or lamp should be previously let down, as a proper precaution; if it be extinguished, this will shew the deadly state of the air below. To rectify this vitiated quality, the well should either be left open for some time, or a fire let down in a pot or grate, by which it will soon be cleared. It is indeed a proper practice to let down occasionally fires into the well, both to purify the air, and to dry the surrounding parts of the vessel. Nothing is so useful as this practice of having fires in different parts of the ship; and when frigates formerly had their kitchens between decks, instead of their being stationed as at present, beneath the forecastle, they were both much more salubrious, and more comfortable to the seamen. So sensible are other nations of the utility of this old plan, that the French still continue their kitchens and ovens between decks; and the Dutch ships of the line have theirs on the *orlop deck*, which is still more salutary. It is sometimes the practice to line the gratings of the orlop with thin deals, to prevent any filth from falling into the hold; but this practice is to be highly condemned, seeing, that the preclusion of air which is thus occasioned, taints the atmosphere of the hold, induces dreadful disease, and destroys the health of the ship.

On the same account, in order that the men may suffer less from a tainted atmosphere, by rea-

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son of the close situation in which they sleep, it has been thought preferable to put them in three watches instead of two. By this means they are confined for a shorter time in their sleeping births.

To conclude then, this first article of air—a free ventilation, the use of fires, and the necessary precautions to prevent the long retention and concentration of human effluvia, and other matters proceeding from the body, in one place, are the first and leading steps to preserve the health of the crews, and to render them fit for service. An attention to these particulars cannot be too strongly inculcated on the Surgeon, and on those who have the care of the vessel.

When infection once takes place, stronger measures will then become necessary, as we shall hereafter have occasion to notice. In situations where the effects of noxious air cannot be avoided, as in the West Indies, where a part of the crew are sent to wood and water, all practicable means should be adopted to prevent the pernicious impression which these noxious vapours will otherwise have upon the body. Many internal medicines have been recommended with this view, all of which tend to give a temporary vigour to the system, such as bitters, aromatics, and a small quantity of spirituous liquors. Of the bitters, the Peruvian bark is deservedly in the highest

highest repute, and we have certainly indisputable testimonies of its acting as a powerful preventative, when liberally used, against the fevers of tropical climates.

When it is considered also, that between the actual reception of contagion, and its apparent effects on the body, an interval of some time, viz. ten days or a fortnight, may elapse, there is full opportunity of trying the effects of such a remedy. The quantity to be taken must be determined by the judgment of the Surgeon, according to the apparent danger and other circumstances of the morbid state. Of the aromatics, those of the most stimulant kind have been preferred, particularly the capsicum and ginger, the use of which is so much coveted by the natives of the torrid zone. The simplest way of administering such remedies in the course of service, will be to give a dose of them infused in a glass of spirits, when the men are sent on unwholesome duties; and this precaution will be found one of the most useful that can be adopted in warm climates. The French are much in the habit of employing garlick for the same purpose, and this they give in a similar manner. But, independently of the vitiated qualities of the air, diseases may be also produced by too free an exposure to it in warm latitudes, as often happens to those who sleep in the open air. From this cause the

attack

attack of fever is very frequent amongst mariners, especially during their first voyage to tropical countries.

It is also not to be omitted here, that besides these effects of the air, which are apparent, and can be judged of, there are others of a more peculiar and obscure nature, the influence of which cannot so easily be accounted for. Thus, in the climates of Europe, certain epidemics make their appearance at one period more than at another; and in the same manner, in the East Indies, the liver disease, but little known in the West Indies, forms one of the most common complaints. In the West Indies also, diseases are found peculiar to some islands, and not to others; thus, the leprosy of Barbados does not manifest itself elsewhere. From these facts it appears, that our analysis of the air, though it may proceed a certain length, does not enable us to detect all the hidden properties of its combination, so as to guard us entirely against its noxious effects.

OF CLEANLINESS.

Consequences of the neglect of Cleanliness—production of contagion—precaution against introducing contagion into ships—danger from impressed men—regulations on this head—attention to the state of seamen's linen—regular attention for this purpose—practice of washing at sea—observations on bedding at sea—regulation on that account.

CLEANLINESS is to be considered in two points of view; first, as it respects the person at sea; and, secondly, the situation in which he is placed, or the state of the ship: the latter of these circumstances has already been treated at some length, under the preceding article of air, and the former chiefly claims our attention here.

The neglect of cleanliness not only renders a man loathsome and offensive to himself, but many of our most inveterate and fatal diseases arise from bodily filth. The air most unfit for respiration, or for the maintenance of life, is evidently that which is generated by keeping the same clothes too long in contact with the body, and confining the body at the same time in an unventilated situation. This is evidently the source of contagion; and to this cause the jail, hospital, or ship fever, is to be ascribed.

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In what specific way contagion is first produced, we are not able to comprehend; but that it is from want of cleanliness, every fact on the subject confirms. This being the case, an attention to cleanliness forms a leading consideration, in directing our views to the preservation of health on ship-board. The first point of precaution on this head should be, that no person be received on board who has not been previously cleansed from all bodily filth, and who appears also as free as possible from disease. This is more particularly necessary on the reception of impressed men, who have been known, when the crew has been otherwise healthy, to have introduced disease on their arrival. Of this fact the writings of naval physicians afford abundant testimonies; and this has led to the useful precaution they have pointed out; namely, that every captain should be jealous of new draughts of men, particularly if they come from a situation where disease is suspected. Indeed of such importance has this circumstance been considered, that some years ago an institution was planned at Portsmouth, by the present First Lord of the Admiralty, Lord Barham, the object of which was, that a particular ship should first receive all recruits for the fleet; and on their being carried on board her, they were stripped, washed, and provided with new apparel, before they were sent elsewhere. Nay, to evince the

the precautions which ought to be taken in introducing new men into a ship, it has been known that, even where no disease could be suspected in the stranger at the time, sickness has afterwards broken out, which could not be otherwise accounted for. On the same principle, of the origin of contagion or infection, it may be observed here, that ships of the line are more sickly than frigates, and so in proportion to the size of the vessel.

All men, therefore, on their first entering into the service, should be provided with a proper change of linen, and it should afterwards be the duty of those who superintend them, to see that they preserve a stock of this article unimpaired. It is too often the case, that men are only cleanly by compulsion, especially at sea, and it is not unfrequent for them to dispose of those parts of their dress they can most conveniently part with, in order to procure other indulgencies. A regular muster, therefore, is of the greatest consequence on ship-board, to the end that the state of their linen may be examined, and their sobriety and cleanliness attended to. This will also have the effect of preventing their laying up foul or dirty linen in a wet or unwashed state, a practice which is more calculated than any other, to generate contagion.

The necessity for this measure will be even greater

greater according to the size of the ship; and it may perhaps be considered as one reason of the unhealthiness of large vessels, that it is not so easy to take cognizance of a considerable number of men, as of a smaller, since many will be apt to skulk, and elude the detection of a muster. The best plan, therefore, in order to make this muster answer every purpose, is to divide the men into certain small divisions, with an officer appointed to each, who shall be responsible for the state of the men in this respect. The practice of washing the clothes once a week, and of setting a day a-part for that employment, is a very salutary regulation, and it would be rendered still more so, if a proper allowance of soap were to be made an indispensable article of supply at sea. Indeed the washing both of the clothes and body cannot be inculcated too much, when it is considered that the men sleep without sheets, and have to turn in between blankets unwashed perhaps for a whole year. In the warm climates this, it is clear, must be highly prejudicial to their health; and the washing of the body should be repeated more frequently in proportion in such situations. Tubs should be even provided for this purpose, which, besides contributing to prevent disease, would also act as a bracer or tonic, and render the seamen less liable to the relaxing effects of these climates.

OF CLOTHING.

Clothing an object of the first necessity in civilized life—at sea, to be particularly fitted to guard against moisture—woollen a preferable covering both in cold and warm climates, on this account—qualities of woollen clothing—necessity of a proper supply of it, and other articles, in long voyages—nothing to be left in the seamen's power in this respect—proposal of a formal uniform for seamen.

All nations, even the rudest, employ some sort of covering to guard them against the inclemencies of the weather. To man in a state of civilized life, it is an object of the first necessity, the improper application of which, subjects him to more inconvenience and hardships, than he is liable to from any other cause. Relatively to the life of a seaman, the chief point in his clothing is, to guard against the effect of moisture; and this moisture, according to the climate he is in, must either be combined with heat or cold. A covering, therefore, which will answer this purpose in both situations, is the great object to be aimed at; and no substance is so well calculated for this as woollen. By its use, the suppression of the discharge from the skin, the great source of inflammatory diseases, is prevented,

prevented, and the skin itself being kept as it were moistened by its own secretion, the natural heat is thus retained, and the access of the external air prevented.

Although in the warmer climates, this covering is less necessary for the sake of warmth, yet it is well known, that exposure of the body is apt to produce a general uneasy irritation upon it, and even to lay the foundation of many dangerous affections. Besides this, the excessive discharge of the skin which there takes place, is absorbed by this covering, and thus the after consequences of cold are avoided. Even the night damps, in such situations, are greatly counteracted; and the dry belly-ache, and many other complaints, seldomer occur in the West India service, than they did before woollen was preferred to cotton or linen. From the advantages of such clothing, it is of great importance that every seaman should have a proper supply of it, and particularly, that the purser should be directed to lay in a sufficient stock of clothes suited for the station to which the ship is destined. Nay, it would be advisable, that a seaman should have little in his power with respect to his own dress. In general, individuals of his class are too indolent to suit their dress to circumstances, unless they are forced to it; nor is any thing more common, than to see some of

them with linen trowsers in the severity of winter, and a pair of greasy woollen ones in the hottest summer.

It is on this principle, that many intelligent naval practitioners have proposed a general uniform for seamen; and it is a matter of astonishment, that such a plan has not been put in practice, as it would both prevent the sale of their clothes, and detect deserters. Apparel might be manufactured of a particular kind of cloth, and an act of parliament passed, to enforce the same regulations and penalties as are usual in the army.

The uniform should consist of a blue jacket, with a sleeve and cape of the same, and lined with thin white flannel; a waistcoat of white cloth, trimmed with blue tape; blue trowsers or pantaloons, of the same cloth with the jacket, for winter, and linen or cotton trowsers, either stripped blue and white, or all white, for summer; check shirt, and black silk neckcloth. A button of metal, or horn, less liable to tarnish, with the letters R. N. upon it. The hat small and round, water proof, with a narrow belt, on which should be printed the name of the ship, which might be conveniently shifted when a man should be turned over to another ship. An outside jacket, of a thicker texture, and flannel waistcoats, might be occasionally supplied, as a defence

defence from cold and rainy weather. Such a style of dress could not fail to be acceptable to the seamen, and it would be highly pleasing in the eyes of the officers and others. The crews of different ships would be known by the name on the hatbands, which would make them emulous to appear clean and orderly. This again would increase the attachment to the service, and to its commanders, and conjointly with this, benefit all the qualities of good discipline.

But while such an attention may be paid to the dress in general, particular parts of the body, as the legs and feet, will require a more immediate care, especially as they are very much exposed to external injury. It frequently also happens, that, without any apparent symptom of scurvy, such is the predisposition of a seaman's habit to this disease, that on receiving the slightest scratch on the feet or legs, a large, spreading, and often incurable ulcer is produced, which sometimes ends in the loss of a limb, or at best, disables him from duty, till a cure is effected by the usual antiscorbutic remedies. This accident is, next to the scurvy itself, the most destructive malady at sea, particularly in a hot climate. Good shoes and stockings therefore should be freely supplied, and the men should be compelled to wear them, and not permitted to go barefooted in hot weather.

The defect in the present allowance of seamen's clothing, has been noticed by many intelligent officers ; and it is considered in general, as too slight and of too small a size for use. The trowsers should be much thicker and larger, as the slightest showers now penetrate them ; and in cold climates, should be made of the cloth called *fearnought*. Let us depict to ourselves the situation of the men, when the topsails are reefing in the winter, cold and wet, with their trowsers sticking to them under a heavy rain. It would therefore be much to the advantage of government, if a more liberal supply of clothing were made to seamen, so as to enable them to shift themselves completely after their duty is over, on being wetted ; indeed nothing is so pernicious, as their turning into their hammocks, when their watch is expired in rainy weather, in their wet clothes, as it causes the bed and bedding to be damp for sometime afterwards.

OF DIET.

Importance of this subject—the preservation of health at sea—its leading influence in the production of scurvy—effect of an alteration of seamen's diet on this disease—origin of this alteration with the navigators in the ships bound on discovery—division of diet into food and drink—original food at sea—salted meat, biscuit, pease—observations on salted meat—chief cause of the production of scurvy—means of correcting this tendency—1. By curing it in a different way—2. By dressing it by steam—3. By abridging the quantity of it used at sea—4. By conjoining it with vegetable matter—vegetable articles introduced into the navy—molasses, sour crout, preserved juice of lemons and oranges, oatmeal, rice, raisins, flour, &c.—remarks on the use of each of the articles enumerated—bread, in the form of biscuit—method of preserving it in an incorrupt state—baking of bread at sea—substitute for yeast—pease—their effects—additional articles of food introduced—as barley, wheat, potatoes, butter—method of preserving it at sea—attention to the diet of seamen—drink at sea—water—its preference to every other beverage—when of a bad quality, alleged to be a cause of scurvy at sea—spring-water the best to be taken to sea—cautions in respect to river-water—method of rendering it wholesome—by a solution of alum, by a tinge of iron, by burnt biscuit—precautions to preserve it from putrefaction—by seasoning the vessel, by charring it, by the addition of quick-lime—objections to the use of quick-lime—method of obviating these—other modes of purification—by cream of tartar, by other vegetable acids, by filtration, by exposure to the air—use of Lieutenant Osbridge's

machine—Dr. Blane's mode of filtration—by distillation—mode of allaying thirst by wetting the skin—beer—its antiscorbutic effects—quantity to be allowed—proposal for a stronger quality—objections to spirits and water as a substitute—introduction of spruce beer—method of making it at sea—its antiscorbutic quality—use of spirits at sea—of wine—table of sea diet—amended table of ditto—sick table of ditto.

THE most important circumstance in the preservation of a seaman's health, is evidently the regulation of his diet. A sea life, it has been well observed, merely as such, is not the cause of the complaints of seamen; for it appears on the other hand, that many ailments are cured by it, and that even a more uninterrupted share of good health can be enjoyed on that element than on land. It is also clear, that scurvy, the destruction of health at sea, appears equally on land as in that situation, and equally too in a warm as in a cold climate, wherever a deficient diet prevails *.

There

* The lower class of people inhabiting the North of Ireland, Scotland, and many of the sea-port towns, derive their principal nourishment from fish, which, although not salted above six months, imparts nevertheless to those people, evident symptoms of scorbutic diathesis. But this scurvy is prevented from rising to any considerable height, by their enjoying the benefits of the shore, and the vegetable qualifiers there produced.

There is a certain principle then in the articles of diet, and particularly existing in vegetable matter, which is absolutely necessary to give tone and vigour to the solids, to preserve the fluids in their proper state of cohesion, and thus to render the body capable of performing its functions in a proper and healthy manner. Next to fevers, the disease produced by this cause has been the one most fatal to seamen, until of late years, when both the cause and remedy have been fully understood, and a mode of prevention adopted by an alteration in the diet, which has much lessened its attacks in the navy.

This attention to diet, originated with the ships fitted out for the purposes of discovery; and their comparative healthiness, under the care of a Cook, and other navigators, led to an imitation

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duced. We are also informed (in the Voyage of the Resolution), that a people inhabiting a part of South America (nearly in the same latitude as England), came off, with a quantity of blubber and guts of putrid fish wrapped round them, which they would frequently apply to their mouths with great satisfaction: they stunk so abominably, we are told, that they could not be suffered on board, yet seemed sprightly, and free from cutaneous defects. It does not appear from the above, that salt entered into the composition of their diet. And lastly, the inhabitants of the torrid zone, many of whom live on vegetables, and consequently use little or no salt, are free from scorbutic affections.

in the fleet, though not to the extent that could have been desired, of the plan they had so successfully put in practice*.

Diet, or aliment, is properly divided into what we eat and what we drink. Of the former, the chief articles given out for the ship's company are, salted meat, biscuit and pease. The first, though unavoidably resorted to in this state, may be considered more than any other article employed, as the cause of disease; and as it

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* The success of this alteration of diet, may be judged from what Dr. Campbell relates in his Lives of the Admirals, namely, that the whole of the time consumed by the Resolution in her voyage, was three years; during which period, they experienced every variety of climate, from fifty-two degrees north latitude, to seventy-one degrees south; and were continually exposed to all the hardships and fatigue inseparable from a seafaring life; and yet what is most extraordinary, the numerous ship's company on board the Resolution, preserved a more uninterrupted state of good health, than perhaps they could have enjoyed on shore, in the most temperate climate of the earth. In that long and various course, of an hundred and eighteen persons, only four were lost; and of that four, one only fell a victim to sickness; a fact unparalleled in the history of navigation. In the most healthy climates, no bills of mortality have produced such an instance, among an equal number of men, during a like period. When, therefore, we consider the numbers of brave seamen who perished by marine diseases, under Anson and other navigators, the greatest praise is due to Captain Cook, for his judicious management, in preserving the health of the men under his command.

cannot

cannot be corrected either by the biscuit or pease, which, though vegetable matter, lose in their dry condition, much of the principle wanted for the preservation of health, so as to prevent the hurtful consequences arising from the animal food, the latter requires either to be prepared in a somewhat different manner, or to be abridged in the quantity used, or else to be conjoined with vegetable substances of an antiseptic or correcting nature. With respect to the first, or the preparing of it in a different way, it has been proposed, that along with the salt, a certain quantity of spices should be employed, in order to preserve it. By this plan a less quantity of salt will be required; and spices are known to be among the most powerful correctors of putrescency in warm climates. In proof of this, we find that they are used in the most liberal manner in warm countries, both by natives and Europeans. Hence animal food is not relished there, unless some spiced dish or other be prepared; and it may be further observed, that the seamen belonging to the country traders in those latitudes, who are in the habit of indulging in what we consider as an extravagant use of these condiments, enjoy a greater portion of health than other seafaring persons. This effect of spices is likewise confirmed by the various experiments made on antiseptics, which evince their power of resisting putrefaction in a high degree.

degree. To give a still greater efficiency to the animal food, it should be prepared for the table by dressing it in steam: part of the saline matter will be thus carried off, and its texture will become gradually and properly softened, without losing any part of its nourishing principle, which it is so apt to do by the common mode of boiling. It has even been proposed to dress it by the steam of wort, which, by affording a large proportion of fixed air, will render it still more wholesome, and equally palatable; and the refuse, or malt, may either be made use of by the Surgeon, or employed to feed the live stock. Where this mode of preparing animal food has not been thought of, the only alternative has been, to diminish the quantity used, and instead of giving it thrice a week, to administer it only twice. This, however, is attended with much disadvantage. A seafaring life may be properly viewed as a hard one; and those subjected to it require the full proportion of animal food, to which the government allowance has entitled them. Finding therefore the bad effects of this practice, the only and best expedient that remained, was the introduction of late years, of certain vegetable articles prepared in such a durable and portable way, that they could easily be carried to sea, and be employed to qualify the scorbutic tendency of the salt provisions. These vegetable articles,

articles are chiefly molasses, sour crout, and the preserved juice of lemons and oranges; to which may be added, oatmeal, occasionally rice, and raisins for puddings.

Molasses, the first of these articles, are used thrice a week, mixed with oatmeal, made in the form of *burgoo*, and are occasionally also given mixed with rice. The sour crout, the second article, is generally administered boiled with pease, on the day on which that article is given for diet. It is not allowed to be washed, nor to be put into the coppers until the pease are sufficiently broken. The raisins, again, are generally used with flour and molasses, in the form of a pudding. These ameliorations of diet were first introduced by the late Sir Charles Douglas, to whose benevolence the Navy stands as much indebted as to his great professional abilities, since he had, with much attention, first tried their good effects in his own ship, and afterwards from the experience thus acquired, recommended them to the service at large. The last article, or the expressed juice of lemons and oranges, may be considered more properly as a medicine than as an article of diet. It is now proved to be a certain specific for scurvy, and will therefore be more fully noticed elsewhere.

Having introduced these observations on animal food, we proceed next to the principal vege-

table

table article of diet, or to the consideration of bread. As this is at all times one of the grand resources of food, and what has been termed not improperly the staff of life, too much attention cannot be paid to preserve it fit for use. It is given at sea in the form of biscuit, which, it is well known, will not keep sound for any length of time, particularly in a warm climate, notwithstanding the precautions which may be employed from time to time to have it well aired and picked; by keeping, even though apparently sound, it looses much of its nourishing principle.

If it is to be used, then every care should be taken to stow it in casks that are water-tight, instead of either keeping it in bags, or letting it lie loose in the bread-room. This method was attentively observed by Captain Cook, with the addition of giving the biscuits a cast in the oven before being used; and thus he was enabled to have it sound at the end of three years. Nothing indeed can be so pernicious, as biscuit rendered acrid by being long kept in a warm climate. From this cause proceed complaints in the stomach and bowels, so frequent among seamen, and which even lay the foundation of more serious maladies.

To avoid the danger of sickness from this source, it would be better that only a certain quantity of biscuit should be carried to sea, and

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an equal or greater proportion of flour, of which bread could be formed. Flour, by being well pressed and rammed, will keep as long as biscuit, and can be stowed in one fifth part of the space. Thus the freight of it would be much less than that of biscuit; and it could be baked as occasion might serve. This plan of baking at sea, has been constantly practised in the French navy; and has likewise been adopted in the British service at different times, under peculiar circumstances, when the superior advantages of it have been very apparent. What is chiefly wanted, to render it complete, is a substitute for yeast; and such a substitute may be formed in the following manner: Let a quantity of barm or yeast be spread thin upon boards, and exposed to a moderate degree of heat, so that the humidity may be evaporated, and that it may be left in a dry granulated state. It must then be put into phials well corked and sealed. Let there be next a strong solution of honey and wort, into which throw a small proportion of the above powder, and in the ninetieth degree of Fahrenheit, a brisk fermentation will be soon excited, perfectly qualified for every purpose for which barm is employed. Bread made in this manner will possess every advantage of that baked on shore; and the trouble attending the preparation of it will be very trifling, compared with the benefit which

both

both the healthy and the sick will derive from it.

Upon the article of pease we have little to observe. They are evidently a viscous, glutinous body, with a certain proportion of oily matter. From these principles they cannot fail to be highly nourishing, and to agree well with the stomach of a seaman, whose digestion is strong. They are apt on shore, we know, to generate flatulence; but this will be less felt at sea, where the exercise is great, and the mode of life hard and laborious.

To the credit of the superintendants of the Navy, several other articles of grain have been introduced, as barley and wheat, which make a proper variety; and perhaps, to these, potatoes would form a useful addition, as they are known to keep a considerable time in a warm climate, and have been found also, in their raw state, to be a useful antiscorbutic.

One article we must not omit to mention here, as being a good one, in so far as it renders that part of the diet which consists of grain and vegetables more palatable, and thereby induces the seamen to eat more—this is butter. The principal objection to it, is its tendency to rancidity, and to corrupt in a warm climate; but even this inconvenience may be counteracted by proper precaution. By the following method it may be preserved sweet, and in a solid state, during a three

three years tropical station, provided it was originally in this condition. Instead of firkins, let it be put up in waxed canvass bags, containing each about fifty pounds weight. Let these bags be thrown into casks constantly kept filled with salt water, which should be renewed once or twice a week, according to circumstances, by drawing off the old from a cock fixed near the lower end, while the new water is admitted from a bung-hole made in the upper end. By this plan the butter will be preserved always sweet; and government will not be so much injured as at present, by the quantities that are condemned. Many other articles of diet have been mentioned by authors, that might be properly introduced in the service, as sugar, tea, &c. On the whole of these, and other articles, we have only to observe, that the improvements which have taken place in naval diet, are now sufficient to counteract the tendency to disease; and that the utmost attention has been paid, that the articles sent on board, should be of the best quality. This subject, indeed, of diet, is now well understood by the officers themselves, and with a laudable attention to the men, they are more apt to enlarge than to curtail the articles of provision sent on board.

Our ships, it may be remarked, are now liberally supplied with fresh vegetables during the

first fortnight after their coming from sea, by which means, and by the fresh meat furnished, they are quickly recruited for any emergency, and prepared to resist the effects of their after diet when at sea.

These remarks on seamen's food we shall follow up by what is of equal importance; namely, by observations on their drink; and the first article that claims our attention here is water.

Water is the best, and certainly the only natural drink, for man. It has been considered by many as one of the prevailing causes of scurvy, when of a bad quality. As the health and comfort therefore of the men at sea depend so much on its purity, particular attention should be paid to this beverage. Spring water is preferable to any other for sea use, seeing that it is less apt to be impregnated with decayed vegetable and animal substances, than running and stagnant waters. This preference is more especially to be attended to in warm climates, where every thing, it may be said, teems with life, and where the materials of putrefaction are so abundant. The mineral impregnations, again, which are common in springs, are never unwholesome, and rather tend to preserve the water than to render it corrupt. Where river water must be taken, which often happens in warm climates, although it may be drawn as near as possible to its source, yet certain precaution

tions should be employed before it is used. These consist in dissolving in it a small proportion of alum, or passing through it a red hot iron several times, or even throwing into it a little burnt biscuit. Water, however pure it may be collected, is always apt to corrupt when kept in wooden vessels, and this is one of its greatest inconveniences at sea. Different methods, therefore, have been fallen upon, either to prevent this corruption, or to counteract it when it has taken place. The former consist in various modes of preparing the vessels that hold the water; and it must be observed that there is a great difference in this respect, in a new cask made of moist wood, and one which has been hardened and seasoned by age and use. This circumstance should be attended to, and the vessel should also be allowed to stand for some time full of sea water, before being applied to other uses.

Another method of preparing the vessel is by firing the cask, in putting the staves together, until a charry coat is extended over its whole surface. This will preserve the water pure and sweet for any length of time, and will have the same effect as another improvement, that of filtering it through charcoal, which has been found to correct the most putrid state of the fluid, and to render it wholesome and pure, although somewhat insipid. The most common expedient,

however, for the purification of water, has been by means of quick-lime; and it has the advantage of being both cheap, and of possessing in a certain degree a medicinal quality, which checks a tendency to bowel complaints.

In proportion as water putrifies, it is well known that it produces insects; and that the glairy matter which occupies its surface, and also collects on the sides of the vessel, is a species of vegetation connected with it. Quick-lime acts as a poison on all such matters, and restores the water to its natural purity. Quick-lime is equally effectual for this purpose, whether slacked or unslacked; but should always be carried slackened to sea, to obviate the danger arising from the generation of heat, which is apt to ensue on its being touched by water in an unslacked state. The only objection to the use of lime for this process, is the taste the water is apt to acquire; but the quantity needed is very trifling, and part of it is also precipitated from the water, by the exposure of the fluid to the air. This process for purifying water may be performed in the following manner, which will also remove in some degree any disagreeable taste that may occur from the addition of the lime. To every cask of water containing one hundred and twenty gallons, add two pounds of well burnt quick-lime, either fresh from the kiln, or properly preserved.

When

When the lime has been in the cask some minutes, and the heat and effervescence occasioned by the mixture are completed, let the cask be stopped from any communication with the external air. Then let a cask be prepared of a form somewhat narrower, in proportion to its depth, than usual; the top should be formed of one plank, and should have a piece cut out of the centre, of a circular form, and as large as can be allowed without weakening the sides too much. This piece, or bung, should be made to fit as closely as possible, and should have an iron handle affixed to it, for the purpose of lifting it, and of confining a weight which is to be laid on, to keep the bung from yielding to a small force within. A small hole should be bored in the top, which should be exactly stopped by a plug, for a purpose to be explained in the sequel. Let this cask, which may be supposed to contain about sixty gallons, after it has been secured on a convenient part of the deck, or slung up in the shrouds, be filled with the lime-water drawn off clear from the sediment, so as to avoid any visible particles of lime floating on it. Sufficient room should be left for the air-vessel, and a free space of about half an inch between the surface of the water and the top of the cask.

Let a vessel be also prepared capable of containing two gallons, or one thirtieth of the capacity of the cask. Into this vessel introduce half

a pound of pure unburnt lime-stone, or chalk grossly powdered, and two quarts of water: then pour gradually on these ingredients three ounces of strong vitriolic acid, commonly called oil of vitriol, and closing the mouth of the vessel with a tubulated stopper, let it down by means of strings, into the cask filled with lime-water. The fixed air, disengaged from the mild calcareous earth, will bubble up through the lime-water. When this has continued about a minute, the bung is to be fastened on, and a weight properly applied, so as to keep it in its place. In about an hour the bung may be removed, in order to see whether the discharge of air continues; if it has ceased, or be considerably abated, three ounces more of vitriolic acid is to be added, and the air vessel returned to its former station in the cask.

The time necessary for precipitating the lime from the water, will be in proportion to the briskness of the effervescency; but in general a few hours will suffice. Should the first parcel of calcareous earth and vitriolic acid be unequal to the sweetening of the lime-water, and cease to discharge air briskly, when agitated, the contents of the air vessel are to be poured out, and a fresh quantity of ingredients substituted in its place. When the water is become mild, the air vessel is to be removed, and if the calcareous earth continues

tinues to discharge air, let it be plunged into another cask of lime-water, that there may be no needless expence of fixed air. The specific gravity of the lime is so much superior to that of the water, that it will soon fall to the bottom of the cask, when the operation is finished. As soon as the water has become clear, it must be drawn off by a cock for use, or if the cask be wanted to purify other quantities of water, it may be drawn off sooner into other vessels. The precipitated lime may be collected, and being now in the state of chalk, and impalpably powdered, it may be used instead of prepared chalk, for the medicinal purposes to which that article is applied.

Besides lime, other substances have been employed for the purification of water. We have already noted that alum and cream of tartar have been made use of with the same view. Vinegar and vegetable acid juices will also counteract any disagreeable taste arising from putrefaction.

In addition to these methods, filtrations may be employed in various ways, by a dripping-stone, for instance; but this simple and convenient contrivance will by no means furnish a quantity sufficient for a ship, and the process of filtration through gravel, as recommended by the late Dr. Lind, will be equally easy, and furnish the necessary quantity. Even exposure of water to the

air itself, will, in a great degree, remove putrefaction; and, to do this more readily, Lieutenant Osbridge's machine should be employed. This machine consists of a hand-pump, which is inserted in a scuttle made at the top of a cask, and by its means the water being raised a few feet, falls through several sheets of tin, pierced like cullenders, and placed horizontally in a half cylinder of the same metal. The purpose of it is to reduce the water into numberless drops, and thus by its exposure to the open air, to deprive it of its offensive quality. The same method will serve to separate the superfluous quicklime in the water. It is a machine very deservedly in common use, and the working of it is a moderate and salutary exercise to men in fair weather.

A very simple filtering machine is mentioned by Dr. Blane. Let the narrow mouth of a large funnel be filled with a bit of sponge, over which let there be a layer of clean gravel, or of sand, covered with flannel, and over the whole another layer of sand. Muddy or offensive water being poured into this, runs or drops out clear, and care must be taken to change the sand, sponge, &c. frequently, as they will become loaded with the impurities of the water.

To finish the subject of water, we must not omit that, in cases of distress, where there is a

want of water, which may occur in particular circumstances, no ship should be permitted to go to sea without an apparatus for distillation. By the simple addition of a head and worm to the common boiler, this process may even go on during the time the victuals are preparing; and not less than eight gallons of excellent fresh water may be drawn off in an hour, while nothing more is needed than the simple process of distillation. In cases of extremity, such is the constitution of our body, that thirst may be alleviated, and the morbid consequences arising from a want of water obviated, by wetting the skin or surface of the body with sea water, which becomes thus inhaled, and answers in some degree the common purpose of drink.

Next to water, the common beverage at sea is beer, which is given out to the men at stated times, in a certain proportion. The antiscorbutic quality of this beverage is well known; and it is a fact, that scurvy is found to make little advances, so long as the small beer holds out. This shews the property of it as a drink, in preference to spirits and water, which are usually given when the stock of malt liquor is expended. So much is this the case, that it has been observed, that such ships as indulge the seamen, when in port, more than others, with spirits from the shore, have on that very account

a longer

a longer list of scorbutic patients, and with more aggravated symptoms. In confirmation of the same fact, it may be observed, that the boats' crews of every ship, are more sickly than the rest of the men, from their being so frequently on shore, and indulging in this pernicious beverage. This is an incontrovertible argument, not only in favour of a general use of malt liquor, but even why it should be rendered stronger. A ship should be able to carry at least eight weeks' allowance to sea; and, if it were of a superior quality, it would keep well, and serve fully this time, so that there would be no condemned beer, which is a loss to government *. The quantity served out daily, should be a quart in the morning, and the same quantity in the evening. When the

* It often happens, on board ships bound on foreign stations, that a great portion of the small beer which had been received, on its having contracted a certain degree of acidity, is condemned and thrown overboard, as "sour, stinking, and unfit to drink." But in this state even, it has been proved, that it may be recovered by the very simple process of throwing into each of the casks, a due proportion of common pearl-ash, to be previously ascertained by a trial on a small portion of the beer. The neutralization having been thus effected, the liquor becomes again potable, and possesses its antiscorbutic quality in the same degree as before. Here then is the double advantage, of a saving to the government, and of a continuance of that drink to the seamen, by which their health is most effectually secured from scorbutic attacks.

malt

malt liquor becomes expended in a long voyage, perhaps no substitute would be so proper as spruce beer, which, as an antiscorbutic, will be found to possess even superior qualities to the common malt liquor, and is easily made by carrying the essence of spruce among the purser's stores. The only difficulty is to conduct properly the process of fermentation in preparing it, and this may be done by the addition of a small quantity of artificial yeast, formerly mentioned under the article bread, taken in its career of fermentation. If, instead of water alone, an infusion of malt is made the basis of the liquor, both a less quantity of molasses will be necessary, and this spruce will then possess the highest antiscorbutic virtues which a diet drink can attain. When the malt liquor is consumed, it has been common to give a small proportion of wine or spirits in a cold climate. The spirits and water, with a proportion of acid, will perhaps be preferable to *the wine*. But in a warm climate, wine diluted would be a better beverage, to which the same addition of acid may be made. Even cyder would be highly useful, could it be carried with advantage to the warm latitudes.

After having made these general observations on the several articles of a seaman's diet, we shall next give a table exhibiting the daily allowance of provisions for each man in the Navy:

	Biscuit.	Beer	Beef.	Pork.	Peas.	Oatmeal.	Butter.	Cheese
	lbs.	*Gall.*	*lbs.*	*lbs.*	*Pint.*	*Pint.*	*Ozs.*	*Ozs.*
Sunday	1	1		1	½			
Monday	1	1				1	2	4
Tuesday	1	1	2					
Wednesday	1	1			½	1	2	4
Thursday	1	1		1	½			
Friday	1	1			½	1	2	4
Saturday	1	1	2					

After this table of the present and usual allowance, we shall offer another of an amended diet, as proposed by an ingenious writer on sea diseases.

Scheme

Scheme of Diet for the more effectual Preservation of the Health of Seamen.

DINNER.

	Beef.	Pork.	Rice.	Portable Soup.	Flour.	Suet.	Plumbs	Pease.	Butter.	Cheese	Sour Crout.
	lb.	*lb.*	*Oz.*	*Oz.*	*lb.*	*lb.*	*lb.*	*Pint.*	*oz.*	*oz.*	*lb.*
Sunday		1	4						2		
Monday				4.				½	2	4	
Tuesday	2										½
Wednesday				½	½	½	½		2	4	
Thursday		1	4						2		
Friday				4				½	2	4	
Saturday	2								2		½

They are to have a sufficient quantity of spice powder with their rice; cellery, thyme, and onions, or eschalots, with their pease; and mustard and vinegar to be given liberally with their beef.

The above is the diet of seamen in health; but

but many other articles it is found proper to introduce for their accommodation when sick: and where government has been found tardy in this respect, the liberality of their own officers has supplied their wants. Dr. Trotter has been at some pains to point out what these wants are, and from him the following table is selected:

NEW FORM. *	
	Yards.
Finer new linen	12
Welch linen bandages	8
	lb.
Tea	8
Cocoa or coffee	12
Sago	8
Rice	16
Barley	32
Fine soft sugar	64
Ginger	0¼
Saucepans strong	4
Canisters	2
Boxes	1

OLD FORM.	
	lb.
Lump sugar	48
Tea	1
Currants	20
Rice	18
Barley	18
Sago	10
Almonds	1½
Tamarinds	3
Garlick	4
	oz.
Eschalots	8
Mace	2
Cinnamon	4
Nutmegs	2
	Yards.
New linen	12
Saucepans	4
Boxes	2
Canisters	1

* These articles being now sufficient for the purposes of service, an improvement of their quality is the only desideratum which remains to be suggested.

OF EXERCISE, OR DISCIPLINE.

Necessity for Exercise at sea—tendency to laziness in the crew, when not employed—marines and landsmen more prone to disease from less activity—encouragement to exercise by the introduction of rough sports—cheerfulness a means of preserving health at sea—good consequences of encouraging it—natural disposition of seamen to cheerfulness—bad effects of over fatigue—caution to officers on this head—advantage of indulgence to seamen.—Remarks on Discipline at sea—recommendation of the introduction of music at sea—effects of the enlivening passions on seamen—general reflections on the means of preventing diseases at sea.

The life of a seaman, though a laborious one, has many intervals of repose, when time is apt to hang heavy on his hands, and when, from his natural temper, he is disposed to indulge in indolence and apathy. Besides this, in ships of war a great proportion of the men are landsmen, who, not being fully occupied in the navigation of the ship, have much spare time left from their own particular duties. It is of much consequence, therefore, that a regular plan of exercise or discipline, should be laid down, to the end that their time may be entirely engrossed, nothing being equally well calculated

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to prevent that indulgence in laziness, which is so apt to take place at sea. This will be obviated by frequent reviews and musters of the men, which may oblige them to make their appearance, and keep themselves clean. As a proof how much activity at sea is conducive to health, it is only necessary to remark, that marines and landsmen are more subject to scurvy than real seamen, who are always more actively engaged than any other part of the crew.

This attention to discipline, should be more particularly observed in ships that contain a number of impressed men. Being unaccustomed to a sea life, they cannot be immediately reconciled to its duties, and fall accordingly into a state of dejection, lowness of spirits, and a total neglect of themselves.

Among this class of people, scurvy is most apt to break out; and exercise will afford one great means of preventing it. It has been very properly suggested by a number of writers on seamen's diseases, on account of this known effect of melancholy, and of a discontented temper, in producing scurvy and other maladies, that every means should be employed and encouraged to promote gaiety and good humour a-board of ship, within the bounds of moderation. This may be very properly done, by introducing certain rough sports to which they have been accustomed

customed in their boyish days; and, if these be encouraged by their commander, they will be returned to with increased pleasure.

This encouragement of cheerfulness must rest entirely with the officers; and it should be inculcated upon them to be as much a part of their duty as any other. Its importance cannot but be evident, when we reflect on the uniformity of a sea life, where, often for months, the eye has nothing but one unbounded waste of water with which to feed the fancy, and where dejection of spirits, the sure and certain prelude of disease, is left to prevail. Nay, as a farther argument, for this encouragement of cheerfulness, it has been observed, that those ships make the best battle, whose crews have been remarkable for it, and that a greater zeal and attachment have prevailed between the men and officers in them than in any others.

The natural disposition of sailors leads them to indulge in certain sports. Buffoonery they take a singular delight in; and we seldom see a ship without one or more droll fellows, who, sensible of this truth, make themselves a voluntary laughing stock to their shipmates. The Miller of Mansfield is an amusement which evinces their disposition for drollery and low humour. Of the same kind we may mention, "storm the castle," and "follow the lead," and, what is still more common, *cobbing*, a diversion which often ends

in serious consequences, when carried too far. It is not to be denied, at the same time, that, though these temporary intervals of ease and inactivity occur, yet a sea life in general is one of violent exertion, and that the common duties of the ship expose the men to much fatigue, from the uncertainty of the weather, and other incidences. These duties also require for the most part, sudden and violent exertions, which are more severe on the constitution than continued moderate ones. Hence seamen are in general short-lived, and their countenance and appearance bear the marks of age, before they really attain it. This is most remarkable when a seaman has passed the age of forty, at which time of life any one, judging from his appearance, will consider him ten years older than he really is. These violent exertions, or over fatigues, are frequently the cause of introducing disease, particularly fevers of the low kind, attended with much dejection of spirits; and hence it should be the care of the commander to prevent, with a religious attention, all unnecessary labour, and shew as much tenderness to his men in this respect as is consistent with the unavoidable duties of the service. This caution is highly proper to young officers, who are too apt to forget themselves, and ready to *call* all hands wantonly, and oblige them to exert themselves without any necessity. Though

sailors

sailors think less of this than other people, yet it is wrong that the generous alacrity of their nature should be thus imposed upon. For the same reason, it would be a good rule to have as few men as possible out of bed in the night-time, unless where active service absolutely requires their attendance, since, if not employed, they lie about the decks, fall asleep, and catch cold. Indeed it has been proposed that all the top-men, except one, should remain on the forecastle, where they can take exercise, which they cannot do when aloft.

The good effects of indulgence to seamen cannot be too strongly inculcated. Every advantage will arise to the service from it, both in their readily entering the service, and conducting themselves in their duties with alacrity and promptitude. This indulgence is by no means incompatible with strict discipline, by which we understand an uniform and regular attention, on the part of the officers, to see every necessary duty performed, without severity or cruelty in enforcing it. It is this steadiness and regularity which will tend both to prevent the attack of sickness, and the commission of faults, so as to render punishment unnecessary. Hence, with a man of sense, strict discipline will always be accompanied with indulgence and humanity, and they will regularly go hand in hand with it.

In recommending the encouragement of cheerfulness at sea, the introduction of music should not be omitted; and in this respect the Navy is certainly very deficient, as the marine music is confined only to the fife and drum. It is true, that some commanders of fortune, have small bands for their own entertainment; and it would be well if government would be at some expence in every ship to provide this amusement. The passions of seamen are ever in the extreme, and it is of the highest importance that hope and cheerfulness be kept alive in their breasts. When the passion of hope rides triumphant, it can, by wondrous efforts, diffuse a fore-taste of future bliss, and even suspend pain for a while. By it the heart rejoices, the limbs are maintained in vigour, and qualified for duty, and the countenance receives from it the same influence as it derives from wine moderately used. But this antidote of toil and trouble may be banished by various causes from the breast of a seaman. Then dejection of spirits and melancholy will succeed; and when once they have obtained footing in a ship, there is something in them even contagious.

The effects of the enlivening passions have been strongly painted by many of the first commanders and navigators upon their crews. Even sickness has been suspended upon a cry of land after being long at sea, or upon a shout of victor

tory. If this then be the case, every circumstance, however trifling, that can contribute to render a sea life more comfortable, cannot be too strictly enforced, even though connected with its very pastimes or puerile sports, where these counteract a tendency to that inactivity which might prove a source of disease.

CONCLUSION.

This important subject of the Prevention of Diseases at Sea, may be shortly comprised in the following leading particulars.

First, In keeping the ship dry, and properly ventilated.

Secondly, In attending to the cleanliness of the crew in their persons and clothing.

Thirdly, In their avoiding cold, fatigue, and intoxication.

Fourthly, In keeping them warm by fires in the winter season.

Fifthly, In preserving an exact and regular discipline.

FUNDAMENTAL SUBJECTS OF MARINE PRACTICE.

Treatment of Febrile Contagion—Scurvy—Lues Venerea.—Of febrile contagion—circumstances on which its activity depends—chemical nature of it—origin of it—effects of confined air—difference of contagion from animal and vegetable matter—causes favouring the reception of febrile contagion into the body—cold—period of life—peculiar constitution—occasional circumstances adding to these causes—first symptoms of febrile action in the system—time of their appearance—mode of reception of febrile matter into the body—quantity of it necessary to febrile action—precautions to be observed in a ship on the appearance of febrile contagion—separation of patients from the rest of the crew—removal of all matters belonging to patients—treatment of patients on the first appearance of disease—measures to be adopted for preventing the spreading of febrile contagion on ship-board—the effect of heat—of fumigation—Dr. Lind's method of fumigation—Morveau's method—Dr. Carmichael Smyth's method—Observations on those different methods.

HAVING thus enumerated the different means necessary for the Prevention of Disease at Sea, before we proceed to a particular detail of those maladies common to the several stations, or departments of the service, three important subjects claim our attention. They may be said to constitute

constitute the successful basis of all naval practice; and to a full acquaintance with them every Surgeon will owe much of his reputation. These are, the means of counteracting febrile contagion, the treatment of scurvy, and the proper management of venereal complaints.

OF CONTAGION.

Infection having once made its appearance in a ship, although the means of prevention already explained, may be of much use in rendering its progress less rapid, they have been found by no means sufficient to check it entirely. More active measures require to be immediately put in force; and these we now proceed to examine.

Though we are unacquainted with the real or specific nature of contagion, yet it is clear that the exhalations or secretions of the sick, are the vehicles by which it is conveyed. It is by them that the atmosphere becomes tainted, and disease produced; and these exhalations acquire their proper virulence, or concentrated state, from being imbibed by clothes, bed-apparel, and other matters that surround the sick. This concentration of the contagious matter will be still greater, and its virulence increased, where these articles are heaped together, and not exposed to ventilation. As a proof of this, it is remarked by hospital attendants, that the danger of contagion in these houses

houses of sickness, is always greater when clothes are accumulated a few days before washing. The nurses, from the smell of the clothes, can even detect the presence of a dangerous fever without any other information.

From this fact of the peculiar smell of febrile contagion, it is evident that the excretions of the body, under this form of disease, acquire a morbid state, which, in the opinion of some physicians, comes very near what is called *sulphurated hydrogenous gas*. This state of the excretions shews that a certain degree of decomposition takes place in the animal fluids; and when received on articles of apparel, or other substances of a similar nature, and not exposed, to be dissipated by the access of the atmosphere, such matter, or the diseased state of the exhalation, will acquire a further concentration, so as to be capable of the most noxious effects to those who inspire them. Thus, substances tainted by the bodies of the sick, are more to be dreaded, and more liable to communicate disease, than the sick themselves.

That contagion also may be generated in particular situations, does not admit of a doubt, where numbers are confined in one place with all the disadvantages of want of ventilation or cleanliness, confined perhaps with low diet and depres-

sion

sion of spirits. In proof of this, we know well, that in an atmosphere deficient of its due quantity of *oxygen*, the vigour of both mind and body suffer in proportion; and in this situation the body itself hourly adds to this state of the air, till disease comes to be produced. That contagion is more to be dreaded from other substances than the bodies of men, is made clear by a fact stated by the late Dr. Lind, that in the African Guineamen, in which the negroes are closely confined in their passage, contagious fever is not one of the diseases; and this arises entirely from their not having any clothes to accumulate morbid matter, and from the exhalations by the surface not being allowed to collect, in consequence of the cleanliness and attention paid to them.

Physicians are as yet divided in their opinions, whether the contagion of animal and vegetable matter is to be considered the same, and is productive of a similar form of disease. Facts are brought forward on both sides; and it has been observed, that intermittents often appear in the same ship, which has been affected with typhus, in proportion as the continued form of fever begins to decline, and to turn milder; and that therefore, the form of the disease is rather modified by the state of the contagion, than by any actual difference of its nature.

Having

Having offered these remarks on the origin of contagion, we proceed next to trace the causes which favour its reception into the body. The first cause that seems to excite the action of typhus contagion, or the low fever, is cold. Hence it generally appears in a cold climate, and in cold seasons, and disappears as summer or warm weather advances. In this country, it is most prevalent in October and November, and generally disappears in April and May. During its prevalence, it is to be remarked, that the number of patients, as the weather becomes wet and rainy, is greater; and that a few days of moisture always increase the sick list.

The next cause that seems to favour the attack of this fever, is the period of life, there being a certain time at which febrile diseases are more liable to be received than at others. At the age of forty-five years the chance is in favour of escaping it. The prime of life, therefore, when the nerves possess all their sensibility, and when health prevails in a high degree, appears to be a favourable period for its action. It is to be observed, that particular constitutions are more predisposed to this disease than others. These constitutions are distinguished by a blooming, florid complexion; by a ruddiness diffused over the whole surface of the body; and by much muscular

muscular strength and arterial fullness. But even in these constitutions, a certain condition of the body appears necessary to predispose to this effect. This condition is the debility that succeeds excessive exeitement, much fatigue from labour, languor from debauchery, hard drinking, and exeessive venery, cold after great heat, dread of infection, &c. Hence such fevers are very apt to appear on board of ship, soon after prize-money has been paid the men, when they indulge in all the exeesses which come under the above heads.

When an individual is exposed to infection by seeing another under the disease, and afterwards receives it, he is generally struck at the time with the peculiar smell formerly described, as coming from the body of the diseased, and a disagreeable taste is likewise exeited in his mouth. The appearance and recollection of the patient becomes associated with these feelings: and the mind dwells upon them, without being able, as it were, to free itself from the impression. To this succeeds, in a certain time, languor, lowness of spirits, inactivity, a foreboding of evil, and an inclination to draw near the fire. Then ensues a heaviness of the eyes and forehead, with a creeping sensation felt over the skin, which becomes paler and drier than usual. This coldness increases,

creases, and occasionally a slight shivering takes place; a degree of anxiety next prevails, with pains of the small of the back and limbs, or stitches of the side and breast. The coldness of the surface, or shivering, is occasionally alternated with a transient warm glow. This quickly vanishes, when the coldness is renewed with additional violence. During this state, the countenance acquires a more dejected appearance, the features shrink, and a confusion of thought takes place. Palpitation of the heart is now an occasional symptom; and the pulse becomes fluttering and feeble.

Such are the first appearances which mark the action of contagion, till the fever assumes its full form and character. The period at which these appearances take place varies, being connected with the different causes and circumstances which hasten or retard the original operation of contagious matter. The manner in which the contagion is actually received, is by no means ascertained; but whether introduced by the stomach or by the lungs, or immediately affecting the *sensorium commune*, it is clear that its action is principally on the nervous system, and that it immediately attacks the powers of life. That a certain quantity of the morbid matter is necessary to produce the complete form of fever, is evident from this particular, that many persons exposed to febrile infection, are attacked with a trifling

trifling indisposition only, which can be ascribed to no other cause, and which disappearing, shews that the quantity received, has not been sufficiently powerful to induce the real febrile state.

When a disease of the febrile kind, as above described, makes its appearance on ship-board, the first precaution on the part of the Surgeon, before employing any other means, is to separate the sick from the healthy, and to cut off as much as possible the intercourse between them. This is done by appropriating a particular birth for the former; besides which, it will require not a little attention to discover as early as possible, those whose ailments indicate that they have received infection; since this is generally concealed by the men themselves, through a wish not to be removed from their immediate situation and mode of life. As soon as a patient is shifted to the sick birth, it ought to be an invariable regulation, not only to prevent all personal intercourse between him and the rest of the crew, but also, that his apparel, and whatever besides he possesses, should be carried along with him, and, in case of death, that the whole should be thrown overboard, as well as the bedding on which he slept. This precaution is strictly necessary, as infection is more readily communicated by bedding than by any other means.

When a patient is removed to the sick birth, his

his treatment is the next step to be considered, and when there, how to counteract in the best manner the effects of the contagious matter he has received.

The first symptoms of the disease are generally confined to the stomach, and consist of bad taste of the mouth, want of appetite, and sickness, which clearly indicate the use of an emetic—a practice very generally employed. The best emetic for this purpose, is a combination of ipecacuan, with some of the milder antimonial preparations. The best time of administering it is towards the evening, when, on the patient's being put to bed, it may be followed by a gentle diaphoretic medicine, assisted by some mild cordials, to open the skin or determine to the surface. After this, the bowels are to be kept clear, and the same plan continued, by the use of mild diaphoretics, or the treatment varied according to the exacerbation of the disease, or to the particular type and appearance the fever shows in its progress; which treatment we shall have occasion fully to specify, in detailing the contagious diseases that occur in the different stations of the service to which ships are appointed.

Besides the removal of the patients to the sick birth, and their treatment there, another business of the Surgeon, and a no less important one, is to secure the rest of the crew from the danger of infection. The means of doing this, we derive chiefly

chiefly from our knowledge of pneumatic chymistry, by which we are taught how to weaken the power of contagion, and also to remove it.

As heat is one of the most powerful means of correcting contagion, by rarefying the air, and dissipating whatever it contains of a noxious tendency, so this power, aided by certain substances in the form of vapour, has been found the most successful method of eradicating contagion. These fumigations, as they are termed, have been used with various substances, and among others, the method proposed by Dr. Lind is, to use the fumes of sulphur thrown upon burning charcoal, the process for which he describes in the following manner:

"It will be proper," he observes, "to remove every thing out of the ship, so that the hold may be swept; and when the men have withdrawn, to light a number of charcoal fires in different places, and to throw a handful or two of brimstone on each. The steam which arises should be closely confined, by shutting the ports and hatchways from morning till evening; no person in the meantime being allowed to go below, nor for some time after opening the ports and hatchways, to the end that the steam may be dispersed. In order to purify the men's clothes, it would be further necessary to fumigate the hulk into which they are removed with tobacco; once

or

or twice a week, while their ship is in dock, the men remaining below as long as they can bear it."

"The clothes and hammocks of the men should be exposed in the hulk to the smoke of the tobacco; and those which are more particularly suspected may be hung up in the ship, and exposed to the steam of the charcoal and brimstone. The ship having already been fumigated with tobacco, it will be sufficient to use the fumigation of charcoal and brimstone above described, for three days, and after the last day's fumigation, the inside of the ship should be washed well with boiling vinegar, and before the men return on board, all the decks should be scraped and washed."

This method of Dr. Lind's has, in consequence of the modern improvements which have taken place by a knowledge of the gaseous bodies, given place to the fumes of marine acid, as proposed by Morveau, and to those of the nitric acid, as recommended by Dr. Carmichael Smyth in Britain. The success of these different gases has been strongly contended for by their respective authors; and so far has the last of them carried the pre-eminence in public estimation, as to have met the sanction and support of government itself, who liberally rewarded the proposer

of it with a gratuity of 5000*l* *. We are, however, convinced that, as every one of these substances has been highly effectual, heat is the great agent in counteracting the cause of contagion; and that its application, as a principal means, is never to be lost sight of, independently of the substances with which it may be combined, and in whatever form it may be applied.

Besides these more powerful acids, those drawn from the vegetable kingdom have also been largely employed for the same beneficial purpose, and in a much greater variety of forms, than the other species of this class of bodies. Of the vegetable acids, the acetous has been more generally used than any other; and as a custom has long prevailed, of employing this acid in sick chambers, on account of the grateful flavour it possesses, so its conversion into vapour, it was supposed, could not fail to be highly successful in eradicating contagion. This

* The French chymists, in asserting the superior efficacy of the muriatic acid, as originally discovered by their countryman Morveau, contend that it rises, in its gaseous form, with much greater facility into the superior regions of the air, than any other of the mineral acids converted into gases. If this be true, as may be readily ascertained by comparative trials, it must unquestionably be most useful in correcting the morbid disposition of the atmosphere.

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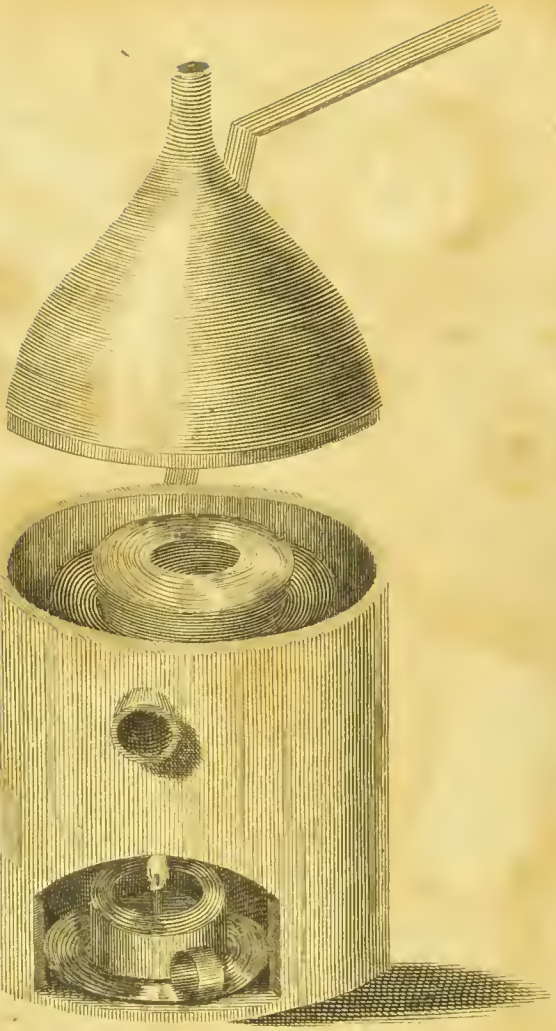

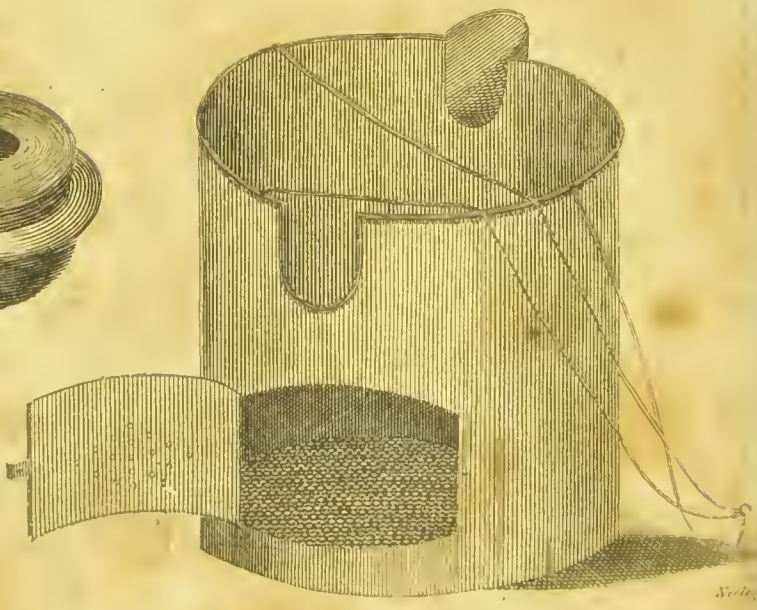

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is also easily done, since nothing more is needed in a sick birth, in order to convert it into vapour, than to plunge a large ball of red hot iron into a bucket full of it. A very neat apparatus has likewise been invented, but it possesses no superior advantages over this common method. On the same principle, from their giving out the vegetable acid in vapour, resinous bodies have been burned, in order to counteract contagion, as the woods of fir, spruce, and juniper. The smoke of these woods is certainly highly salutary, on the principle of renewing the air, and of restoring to it the purity and elasticity of which it may have been deprived by any cause whatever. The same effect will be still more easily produced at sea, by the burning of tar itself. This is performed either by throwing it on red hot iron, or on a wood fire carried about in a pot between decks; or over several cannon balls placed in a tub; or by immersing a red hot loggerhead into a bucket of this substance.

Such are the various modes of checking the progress of infection, by means of fumigation; but, though each of these methods will do a great deal, yet this process is not alone to be trusted. The heat, simply considered, which accompanies these fumigations, and which is necessary to convert the various substances into vapour, has certainly a great share in the good

effect produced; but, still the auxiliary means of ventilation, washing, and cleanliness, must not be lost sight of. The combination, however, of all these means, if fully and regularly employed, will not fail in a very short time to eradicate the seeds of infection, however deeply they may be rooted. As a strong proof of the great influence of heat itself, in dissipating contagion, when accompanied with a free or open air, it is to be observed, that infection is much less apt to be generated in a warm, than in a cold climate; and that fevers brought in ships from Europe, are generally got rid of as soon as these ships arrive in warm latitudes.

As a full confirmation of the efficacy of the means above pointed out, for checking the progress of contagion, when they are fully and regularly employed, we shall here detail the method in which they were put in practice by Sir Roger Curtis, in the case of one of the most malignant fevers which can occur on ship-board, for no less than from ten to fifteen individuals were attacked by it in a day, and about 150 labouring under it, were removed from the ship to the hospital.

The detail of this method, Sir Roger Curtis introduces by observing, "that as seamen have great reluctance in complaining, when they find themselves but slightly indisposed, and as it is very material that infected persons should,

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as speedily as possible, be removed from the body of the ship's company, in order to impede further communication of the diseases, as well as to facilitate the cure of those attacked, by an early application of medicine, great attention was observed by all the officers, in immediately reporting every man who appeared to have the smallest indisposition, whether it was discovered by day or by night. The whole of the space under the forecastle, on the larboard side, including the round house, was appropriated to the sick; and the obtrusion of any other persons absolutely prevented. To this place each individual was removed, the moment it was discovered that the disease had seized him; and the primary remedies towards cure immediately applied. He was thence, as speedily as could be, carried to the hospital, care being had that every thing belonging to him was conveyed thither with him. Moisture acting more powerfully than any other cause in the production of disease, as well as in the propagation of it, our first care, he observes, was the endeavour to remove all humidity and foulness of the air.

"The well was baled out, scraped, and swabbed, till entirely dry, and then a large fire was kept burning in it for several hours every day, so that the smallest dampness therein was not suffered to remain. The hold had the upper

tier of casks removed from it; and these were sent on shore. Three fires were then kindled in it, and kept burning for many hours every day, confining the smoke as much as possible, and occasionally shifting the fires from place to place. In the fuel made use of, as many empty tar barrels were consumed as could be collected for the purpose; at other times wood, and occasionally coals, intermixed with shakings of tarred ropes, every precaution being constantly taken to prevent accident. When the fires were extinguished, the gratings of the hold were removed, and the windsails let down. The orlop was constantly kept as clear as possible of every thing that prevented a free circulation of air, and a fire placed sometimes on one part of it, and sometimes in another.

"The cockpit, steward's room, and bread room, were treated in the same manner.

"The doors of all the store-rooms were occasionally thrown open, and the ventilators worked unremittingly day and night.

"Three fires on each side the between-decks, were kept burning almost the whole of the day, and these were from time to time shifted to every part of it.

"The manger was cleared of all kinds of lumber, and a fire occasionally placed therein.

"The deck was seldom washed, and never but

when

when the weather was such, that the people could remain upon the upper deck, until it was perfectly dry by the fires, and the natural current of the air; nor was any person whatever permitted to go below, under any pretence, until the general permission to do so was given. When the deck was not washed, it was kept perfectly clean by other means; and slops about the decks, together with every sort of dampness, were speedily guarded against. The sides, beams, carlings, the deck overhead, and every part of the between-decks, were white-washed twice or thrice during the prevalence of the disorder.

"The fumigations in the hold were thus conducted: four half tubs with stands in them were disposed therein: in each of the tubs was placed an iron pot, into which were thrown about two pounds of brimstone, tied up in a piece of canvas. The gratings were laid, and so closely covered with tarpaulins, old hammocks, swabs, &c. that none of the smoke could escape. When every thing was prepared, a red-hot loggerhead, or iron lid, was put into each of the iron pots, to set fire to the brimstone; and the men performing this service, having instantly left the hold, by means of a grating of the main hatchway kept open for the purpose, the hatches were entirely closed.

"It was the custom to fumigate the hold, orlop,

and between-decks at the same time; but as we could not be furnished with a sufficient quantity of brimstone, to make use of it in all the different parts of the ship at the same period, it was usual therefore to use the brimstone in the hold, orlop, and between-decks in rotation; and where this substance was not applied, what are called devils, made of powder wetted with vinegar, were substituted. It ought here to be observed, that in those parts of the between-decks least accessible to the air, and where consequently there is a greater degree of contagion, the flashing of powder from pistols is attended with a very good effect; for the shock of the explosion assists very powerfully in dispersing the infectious matter attached to the timbers of the ship.

"During the fumigation, the men's hammocks were all hung up in their places, with their mattresses and blankets spread over them, and all their spare apparel was so disposed on the guns, &c. as to receive the full effect of the fumigation. The clothes which the men wore upon deck, during the time of one fumigation, were changed upon the next, and placed below, that all their things might receive an equal purification.

"The gratings on the main deck were laid, and covered with such care, that no smoke could escape, and the pots were carefully barred in.

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The brimstone in tubs, the devils, and other safe precautions were dispersed about the deck, and then lighted; the persons who did this having escaped on deck, and closed the hatchways after them, the operation was completed. The smallest crevices of the ship were pervaded by the smoke and effluvia of the brimstone, &c. by which every part of her was affected in a powerful and astonishing manner.

"Three hours were generally suffered to elapse before the gratings were uncovered, and the ports opened; and a free circulation of the air for a considerable time afterwards became necessary, before a person could remain below without inconvenience. The whole of the hull of the ship, together with every thing contained therein, both animate and inanimate, was strongly impregnated with the fumes of brimstone, to such a degree even, that it was perceptible when to leeward of the ship, at a considerable distance from her.

"In damp weather these fumigations were practised every day, and never less than three times a week. The fires were continued daily. The sick birth was attended to with the same solicitude, to impede and eradicate infection, as has been described with respect to the other parts of the ship. Nor were the persons and apparel of the men disregarded. Every man in the ship

was

was washed from head to foot with warm water and soap, and more than even our usual pains were taken that they should be cleanly in all respects. If any old and useless clothes were found, they were thrown overboard. Such serviceable apparel as was discovered the least filthy, was washed and fumigated, and the men were forbidden to wear woollen trowsers. On fine days, the whole of their bedding was hung upon lines between the masts, and on the rigging, and exposed thus to a free ventilation for many hours. Their clothes of every kind were treated in the same manner."

OF SCURVY.

Next to the means of counteracting febrile contagion on ship-board, the most important subject that falls to the attention of a Surgeon is the treatment of scurvy. The prevention of this disease having been fully treated, in the examination of the preceding articles of Air, Diet, and Cleanliness, its symptoms and cure are the principal objects here.

This disease, it is well known, was little attended to before the sixteenth century; and though some symptoms of it are described by the ancients, still, from the limited state of their navigation, they were merely acquainted with it in its milder stages.

The first appearances of this malady are marked by a languid, torpid state of body; the patient has a pale, bloated look; there prevails a dejection of mind; and the breathing is affected on the slightest exertion. In a short time the gums acquire a softness and swelling; blood exudes from them, and putrid ulcers are formed. The teeth also become loose; the breath fœtid; and the urine highly coloured. The heart is subject to palpitation. Œdema, or dropsical swellings, attack the lower extremities; the body is affected with

with wandering erratic pains of a pleuretic or rheumatic kind; and blotches and ulcers, which terminate in mortification, break out in different parts of the skin.

By the aggravation of all these symptoms, the last stage of the disease subjects the unhappy patient to the most deplorable sufferings. Excruciating pains attack the bones. The joints swell; and the tendons become rigid, preventing all motion. The fatal termination, though gradual with some, is in general sudden, especially on any attempt to move the patient, or expose him to the free air.

During the progress of the disease, the pulse is generally natural, but at last becomes weak and intermitting. The breathing is often interrupted; and cough is also an attendant symptom. The appetite continues little impaired; and in some cases even, the patient, a few hours before his dissolution, is more eager than ever in his calls for food. The skin is dry, and shows the anserine appearance. The mind is very variable, and there prevails great timidity; but the intellects remain for the most part sound to the last.

Scurvy is a disease which appears equally in a warm and in a cold climate, but it has been observed to differ somewhat in its symptoms, under each of these circumstances of attack. Thus, in a warm climate, the appearances in the extremities take place earlier; while in a cold climate the gums

gums are sooner affected, and the difficulty of breathing is more frequent, and more uneasy. This symptom in the end is generally fatal, and is most frequent in those cases in which there are fewest external marks of the disease. It may be also observed, that weakness of the eyes is not an uncommon symptom of the disease in warm climates, although it has been but little noticed.

The disease, as it has been thus described, has often proceeded to such dreadful lengths as to stop the first navigators in the progress of their discoveries, and to suspend even the operation of war itself. The principles of its cure are now fully understood, and as it arises from a vitiated or scanty diet, connected with a want of that principle which vegetables supply, the means of recovery are clear, and easily applied. Indeed, whatever opinion we may form of this malady, it is an established fact, that recent vegetable matter imparts a something to the body which fortifies it against its attack; and the quantity of this something which vegetable matter supplies, in proportion to the power of the external causes favouring the disease, will, sooner or later remove the morbid symptoms*.

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* So sudden is the operation of vegetable matter in these attacks, and such, it may be said, its magical effect, that in the case of a frigate's crew, on the southern coast of North America,

In directing the cure, it will be proper to make a distinction between what may be called the scorbutic habit, and the actual disease itself. This habit is chiefly known by the incurable state of ulcers, which either spontaneously break out, or appear after slight accidents. It is also noted by a general languor, or sense of weight; and likewise by a soft indolent tumor, which arises under the skin on a part that has received a small blow or contusion, so slight as not to break the tegument. This tumor most commonly appears about the elbow or forearm, and subsides without any inconvenience, as soon as its contents have been absorbed. This habit, and the disease itself, differ only in degree; and the principle of the treatment of both is to throw the vegetable acid into the system, in such manner, and in such quantity, as may counteract its putrid state.

The vegetable acid found most active with this view, is that known by the name of the citric; or,

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rica, nearly seventy of whom were affected by sea scurvy, every symptom disappeared in the course of a few days, in consequence of a providential supply of pine apples, notwithstanding at least twenty laboured under the last and most malignant stage of the disease. It may be observed here, although not any analogy in the *modus operandi* can be traced, that the carbonic acid gas, or, as it was formerly called, fixed air, produces the same effect, but by a slower operation.

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in other words, the juice of the lemon and orange. This juice is so powerful as to be reckoned a certain specific for the disease, when given to the extent of three ounces a-day; but as its continued use, by itself, tends to weaken the stomach and general habit, and to produce emaciation in proportion to the period of its exhibition, it will be better to employ it in a smaller quantity, and to combine with it fresh vegetables and fruit, whenever they can be had. The preserved juice, it is also to be observed, is found inferior to the fruit in its entire and recent state. So strongly marked is the influence of all vegetable matter over this disease, that a patient will recover sooner with a diet of vegetables alone, than where animal food, even of the freshest kind, is conjoined with it. In the milder stages of the malady articles of inferior power, as anti-scorbutics, may be used with advantage, viz. malt and molasses, which will prevent the farther progress of the symptoms, and even tend to restore the constitution. The same benefit will be derived from the effervescing mixture of acids with fixed alkali.

A specific has been proposed, as preferable to the citric acid, by a naval practitioner, Dr. Paterson, which consists of the acetous acid with a proportion of nitre. If we are to bestow any

credit

credit on the facts adduced in its favour, it cannot fail to be considered as a valuable acquisition in this disease; but still we are not warranted by the experiments that have been hitherto made, to give it a preference over the vegetable acids, when these can be readily procured.

Such is the general principle to be adopted in the treatment of scurvy; but particular symptoms will require a separate management; and, indeed, whatever tends to increase the fluid secretions will very much hasten the recovery of scorbutic patients. Thus, pains of the belly must be allayed by emollients and anodynes; impeded respiration by pectorals, as the squill vinegar, and blisters; and dryness of the skin, by Dover's powder and decoction of the woods; or by camphor, combined with nitre. The ulcers of the gums are to be washed with diluted acids, as the vitriolic and nitric; or with tincture of bark, or honey of roses; and also with astringents, as alum, ardent spirits, &c. The rigidity of the muscles, particularly the contraction of the hams, and the livid hardness of the calves of the legs, are to be relieved by fomentations and emollient cataplasms. Even the burying of the legs in the earth has been found to have a good effect, and to act upon the same principle, a profuse sweat being produced on the part by this application.

From

From the time of Dr. Lind the practice in no disease has been brought to such certain and successful issue as in scurvy. Much merit is due to several eminent practitioners of the present day, both for discovering the specific of this malady, and also for establishing another fact of the first importance, that the disease is more readily cured at sea than on land, and that a change of air, from on ship-board to land, so far from being necessary, is often attended with the worst consequences.

OF THE VENEREAL DISEASE.

From scurvy we proceed to examine a disease which falls much to be treated by every practitioner, but particularly by those who are employed in the naval department. In our detail of this malady, we shall chiefly consider what is peculiar in its history, symptoms, and cure, as it occurs at sea, or among those exposed to a seafaring life.

If there be any disease to which a specific cure is applicable, it is certainly to the venereal; and mercury, properly administered, has, from its first introduction to the present time, remained the safest and most infallible remedy for its removal. In the regulations of naval practice, it would appear that for a length of time, government displayed a very short-sighted, and rather an illiberal conduct; and that, by subjecting the men to a particular charge for this disease, they materially injured the service. In consequence of this fine on the seamen, they were naturally led to conceal the disease as long as possible, or to put themselves into improper hands for its cure, rather than be subjected to the regulated fee of their own Surgeon.

Among

Among the other improvements lately introduced, the removal of this way of remunerating the Surgeon may be considered as one of the most important to the health of seamen. The good effects of it are now so apparent, that the women who associate with the men are seldomer diseased than formerly; and the unhappy prejudice which seamen too often entertained, of communicating the disease to a healthy female, with a view to be cured of the infection, is done away.

The venereal disease first made its appearance in Europe in 1493, and in a short period afterwards, became more generally known at the siege of Naples, where it raged with such extreme violence and unabated fury, as to resemble more a fatal epidemic in its rapid progress, than the common moderate affection it now appears to be. In describing this malady, we shall trace its progress into the system, first, as it affects the external surfaces in the form of gonorrhœa, and chancre; secondly, as it attacks an intermediate part, or the glands, situated between the external surface and the source of circulation, in the form of bubo; and, lastly, as its influence is extended to the consitution, when it assumes a variety of appearances, particularly in the throat, nose, skin, and bones.

The poison of this disease is never active in any other but a fluid form, and can only therefore be

communicated by actual contact; and even then some irritation or friction must be conjoined to produce the morbid effect. This also, when it has taken place, will be much regulated in its degree of violence, by the quantity of matter received, by the irritability of the person to whom it is applied, and perhaps by some other circumstances with which we are as yet unacquainted. It is perfectly clear, however, that the young and sanguine are more liable to be attacked by it than others; and that in some constitutions it displays a peculiar acrimony not to be accounted for.

As the appearances of the disease first manifest themselves on the surface, to which the poison is immediately applied; and as this part of the surface is commonly the genital system, we shall first describe its most frequent appearance there, as known under the appellation of gonorrhœa.

Gonorrhœa.

This affection consists in inflammation of the urethra, the specific action of which extends no farther than within an inch or an inch and a half of the orifice; but, in its progress, is communicated by sympathy to all the surrounding parts, and produces a variety of uneasy and painful sensations. The leading symptom of this affection is the discharge. It is at first of a thin consistence, and of a yellow greenish colour, but, as the disease advances

vances, either from the subsiding of the inflammation, or the use of remedies producing the same effect, it acquires a more bland, white, and ropy appearance. When the inflammation is violent, it is often tinged with blood; and, in general, from the appearance of the discharge, we are able to judge of the state of the disease. Corresponding with this variety in the colour of the matter, are the other attendant symptoms of the malady. At first there prevails merely a swelling, fullness, and tightness of the parts. These are succeeded by a sensation of heat, irritation, and an acute scalding pain on the discharge of urine, which is particularly severe when the last drops are forced away. Along with these, painful spasms of the member take place, which becomes tense and rigid through its whole extent, producing erections of a most disagreeable nature, that are often followed by a discharge of blood before these symptoms are relieved. At times the whole of the lower belly becomes affected, and both the bladder and testicles are brought into a most painful and irritable state. The continuance of these symptoms varies in different cases. From ten days to a month or longer, may be considered as the usual period of their duration. They are generally most protracted in scrophulous habits.

In directing the cure of gonorrhœa, the general means of obviating inflammation are clearly pointed out, and, in applying these, the three

leading symptoms that merit attention, are the *discharge*, the *chordee* or spasms, and the *occasional hemorrhage*.

For the first of these symptoms the use of injections is necessary. These injections should be composed at first of substances of an oily or mucilaginous nature. As the inflammatory symptoms abate, these should be succeeded by others of an astringent and sedative kind; and their effects should be assisted by an attention to an open state of the bowels, and a proper regulation of diet. This plan is to be strictly pursued till the total disappearance of the discharge takes place.

Where the chordee or spasms, the second symptom, are violent, which chiefly occurs in the night-time, the internal use of opium will be required, sometimes topical bleeding, and also the external use of antispasmodics.

Hemorrhage, the third symptom detailed, is not so frequent as the two former, and is chiefly to be removed by rest, cold, and astringents. If these do not succeed, mechanical means may be had recourse to, as the application of a bougie, or hollow catheter, or even the forming of a pressure externally.

Swelled Testicle.

When the inflammatory symptoms of gonorrhœa increase to a violent degree, and are extended to the upper parts of the urethra,

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it is commonly succeeded by a swelling and inflammation of one, and sometimes of both testicles. The same consequence also is often produced by the use of strong cathartics imprudently exhibited, and by the indiscriminate and premature use of astringent injections. The first symptoms of this affection are known by a sharp darting pain in the part, attended with a tension of the spermatic chord. There prevail also acute fever, and much uneasiness over the thighs and abdomen. The swelling gradually enlarges to a considerable size, but its termination is generally by resolution, when the discharge, which is often stopped at the commencement, returns.

This disease is evidently an inflammation of the sympathetic kind, and is to be treated by the general remedies for subduing inflammation, particularly where the symptoms run high, and the progress of the swelling is rapid. In this state of the disease, large, general, and topical blood-letting are the most effectual remedies, and most to be depended upon. These are to be succeeded by the use of mild purgatives, cataplasms to the parts, with preparations of lead, the steams of warm vinegar, &c. and a suspensory bandage to support the swelled testicle; while a spare diet, rest, and a horizontal posture are enjoined, and occasionally, where there is much pain, the use

of opiates, both internally and topically, will be attended with the best effects.

Independent of this affection of the testicle, a swelling of the spermatic chord itself sometimes occurs. Its extent is various, it comes on with pain, tension, and inability to walk, the pain frequently departs, but the swelling remains, and acquires different degrees of hardness. The same antiphlogistic treatment is proper here as directed in the swelling of the testicle, and that not succeeding, mercurial unction may be applied with advantage.

Another symptom, which is apt to attend the progress of gonorrhœa, is a contraction and thickening of the prepuce, which, when fixed over the glands, is termed phymosis, and when retracted behind that body, paraphymosis.

The treatment of these affections, where slight, depends on the use of emollient washes, as immersing the part often in warm water, avoiding motion, and suspending the penis; but where there is much inflammation, venesection may be necessary: no violence should be used to the parts in drawing them back or forward, although the remains of this disease often continue for life without much inconvenience. If there is much inflammation, and if it is necessary to remove the stricture, the division of the prepuce becomes then unavoidable.

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Such are the principal symptoms which attend gonorrhœa, and its consequences, which induce a new state of disease, after the original affection is removed, are no less important.

Consequences of Gonorrhœa.

The first of these consequences that succeeds gonorrhœa, is what is termed a *gleet*, and consists in a discharge without infection, arising merely from relaxation of the mucous glands, or from a stricture and callosity of the passage. Its cure is to be attempted by the use of astringents, particularly injections, which may be used six or eight times a-day, and even by those of a stimulant nature, as acrid solutions of mercury, sal-amoniac, tincture of cantharides, verdigris, &c. though these are, from their highly stimulating quality, to be seldomer employed, and with great caution. It may be also attempted, by directing the discharge elsewhere, by the formation of an issue at or near the perinæum, and by different restorative means, during the local applications, as tonics, viz. chalybeates, cold bathing, with a restorative diet, and avoiding venereal indulgences.

When scrophula is suspected, bark and hemlock have been recommended. In every case where the disease is obstinate, and stricture suspected, the introduction of a bougie will ascertain it, and is the chief mode of cure, or else the application

plication of caustic, according to Mr. Hunter's method *. In using the bougie here, its size should be as large as the parts can bear, and it should be also long continued. The best bougie we can employ, is the flexible metallic one of Mr. Smith.

Obstruction of Urine.

Another more formidable symptom that succeeds gonorrhœa, is obstruction of urine; this is produced by certain organic changes of the passage, the effect of inflammation: these changes consist in tumors seated high up in the urethra, as the swelling of the prostate, and other glands, spasmodic constriction of the urinary canal, which suddenly takes place, and is as suddenly removed, caruncles, or excrescences in the urethra, and real stricture or swelling of its spongy body.

The treatment of the first, or swelled prostate, is commonly attempted by mercury, cicuta, mezereon, sea water, and other remedies, with various success, though it is in general incurable.

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* The first who takes notice of this mode of treatment, was Ambrose Parvè, surgeon to Louis XIV. the father of French, and, indeed, of European Surgery. In his estimable work, he gives a delineation of the instrument he employed for the destruction of strictures in the urethra, and which Mr. Hunter has copied, and certainly improved, but is not the inventor, as has been erroneously conceived.

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The treatment of the second, or spasmodic constriction of the passage, depends on warm emollient applications, such as decoctions of chamomile and poppies, &c. rubbing the penis with camphorated oil, or anodyne balsam, or æther and laudanum: opium administered internally, is highly useful in this case; bleeding has removed it when other remedies have failed, and blisters to the perinæum; electricity has also at times been attended with the best effects; so has also the passing a bougie, where the contraction will admit of its introduction without much violence.

The removal of the two last causes, depends on the use of the bougie: it should be slowly and gradually introduced, and though a failure should take place in passing it at first, still it should be persevered in till its entrance is procured. In some unfortunate cases, where it cannot be passed at all, the causticated bougie must be had recourse to.

Chancre.

Such are the principal effects that mark the primary action of the venereal poison, when applied to the urethra, or to a mucous surface. We are next to consider it as it attacks the common skin, and forms a chancre. This ulcer or sore, sometimes begins like a pimple with a white

white point, which suppurates and spreads. On other occasions, it seems merely like a fretting or excoriation of the skin, which becomes deeper and wider, and shews no disposition to heal, with a thickened base and circumscribed inflammation. It appears most frequently on the inside of the prepuce, particularly where it unites with the glands, and occasionally on the glands itself, where some smarting pain generally leads to the discovery.

The appearance of chancre varies very much in different constitutions, and wherever chancre discovers early a great tendency to increase, under the use of medicines, becoming fouler, or assuming an angry aspect, this may be considered always as an unpleasant and sometimes an alarming symptom. Chancre is, more than any other form of the disease, the prelude to the constitutional malady, and absorption takes place more readily from an open sore exposed to the effects of the atmosphere, than from any other surface. Hence, though it is a topical affection, a local treatment can by no means be trusted to with safety for its cure. There is always danger of absorption having taken place, and the progress of the poison having passed farther than the surface of the sore; of this innumerable instances have occurred in practice, and a local treatment will therefore always be insufficient and unsatisfactory,

factory, till we can determine on the one hand the exact period at which absorption from a sore takes place. And even when that is ascertained, it will require that we should be no less exact in establishing the time when the ulcer first appeared, which few patients can readily do. The safest practice then is, to conjoin the constitutional and local treatment at the same time; and while we attempt speedily to cure the sore, not to lose sight of the probability of the entrance of the poison into the habit. The best local treatment is to remove the chancre by the application of caustic, and thus to destroy as far as possible the diseased action. When slight, chancre is frequently cured by washing frequently with spirits of wine, rum, hungary water, or spirits of lavender, but mercurial applications are always the most effectual, particularly those ointments and washes, made up with metallic salts, as with red nitrated mercury, with mild and strong muriated mercury, &c. and where the chancre is very indolent, with verdigrease or acetated copper, or nitrated silver. While these external applications are made, mercury should be administered in such quantities as the symptoms seem to require, and continued for eight or ten days or more, after the cure appears to be completed.

Consequences

Consequences of Chancre.

Contraction of Prepuce, and Warts.

The consequences of chancre, are neither so frequent nor so important, as those which succeed gonorrhœa; they consist chiefly of two affections, contraction of the prepuce, and warts; the first of these has been already treated as being also a consequence of gonorrhœa. Warts are a frequent affection of the glands and prepuce; at first they appear like small points, gradually becoming larger and more numerous, and covering more or less the penis, but chiefly the prepuce. They are of various sizes, consistence, and appearance; they adhere sometimes by a narrow, sometimes by a broad base. Their treatment consists, wherever a ligature cannot be applied round them, from their number, or the broadness of their base, in exciting much inflammation; and this may be effected by a strong solution of sal-ammoniac, corrosive sublimate, savine powder, with verdigris, mustard, &c.; these applications should be renewed as often as the inflammation subsides. When once removed, they are very apt to return, and successively to appear in the same way; in which case, a mercurial course is sometimes necessary.

Bubo.

Bubo.

We have thus examined the primary action of the venereal poison, or what we may term the first stage of its progress: we come next to the intermediate stage, when the poison, having passed beyond the external sore in chancre, is carried by the lymphatic vessels till it arrives at the first cluster of glands, where its progress is arrested, and its action commences. This effect of it here is termed a bubo, and is denoted, at first, by pain of the part, which is generally the groin, with some degree of hardness and swelling; this, at first, is not larger than a kidney-bean, but increases, and occasions a redness of the skin, with difficulty in walking. Part of the swelling then rises to a tumor, with a throbbing and pulsation, and in the course of eight or ten days, it becomes often larger than an egg. This affection generally terminates either by resolution or suppuration, more rarely by schirrus. It is generally in the first or inflammatory state of chancre, that absorption takes place, and this does not extend beyond eight or ten days from its first appearance.

In the treatment of this symptom, resolution is the great object to have in view; and this will be best effected by topical bleeding, a spare diet,

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the use of purgatives, and, above all, the topical application of mercury, rubbed in upon the thigh so as to pass through the affected glands. Symptoms of irritation are, in the mean time, to be alleviated by opiates as often as they are indicated.

When a tendency to suppuration is discovered, the former plan, so far as concerns the antiphlogistic part of it, is to be changed, and a full diet, and maturating applications applied to the part, and the mercury should be suspended until the suppuration is complete, and the tumor breaks, and then to be continued as above till a cure is accomplished. When matter is once formed, it may be opened by the lancet, by caustic, or by slight scarifications on the skin, provided the teguments do not give way after suppuration is fully accomplished. The sore is then to be dressed with mercurial ointment, and the treatment continued internally, as before directed.

Constitutional Disease.

When the venereal poison, instead of confining its action to this intermediate stage, passes upwards, and enters, through the medium of the circulation, into the habit at large, it then forms the constitutional disease, the third and ultimate stage of its progress. The appearances it displays in the constitution are more varied than those

those of preceding stages. These appearances are generally displayed, first, in the throat, nose, and mouth; next in order, on the skin; and last of all, on the periosteum and bones; though in some rare cases, they are not displayed in that exact and regular order.

The appearances which constitutional venereal symptoms assume on the throat, are those of deep conical ulcers, first affecting the amygdalæ, without much pain, though they generally produce hoarseness, fœtor of the breath, and other disagreeable feelings in the mouth. The appearances in the nose are, ulceration of its internal parts, particularly of the ossa spongiosa; and, when seated low down, it shows often a white slough, or a firm brown crust; it is also the occasion, at times, of polypous concretions in the nose.

Venereal ulcers affect the mouth in every part, but particularly the palate and tongue. The first appearance is commonly a deep copper-coloured spot, with a red tinge round its edge, somewhere in the space between the uvula and the middle of the palate; this spot passes at last into ulceration, and spreads with great rapidity both broad and deep, but at the same time is generally single.

The skin, the next seat of venereal symptoms, in their progress, is defaced by spots of a red, brown, or copper-colour; scabby blotches appear

also about the roots of the hair and temple. These spots end in ulcerations, and are most numerous on the breast and shoulders, and from this situation extend over the rest of the body. These ulcers cast off deep sloughs, and have a dark brown appearance on their sides and bottom; their discharge is fœtid, acrid, of a greenish hue, and no external applications make any alteration on them.

The last situation of venereal constitutional symptoms is the bones, which become affected with sharp pains in the night time, especially in the tibia and shoulders, and these pains depart as the morning advances.

Such is the progress of the constitutional disease; and where no stop is put to it, the different glands become at last indurated and schirrous, and the bones rotten and carious, shooting out a soft fungous substance, which, on being destroyed, bleeds, and soon returns.

The cure of the constitutional disease is one which requires much attention both on the part of the practitioner as well as of the patient. Various plans have been adopted, at different periods, with a view to simplify it, and abridge the time during which the use of medicine becomes necessary: all these methods have been found ineffectual, for it is now universally allowed, that mercury is the only remedy in the venereal disease

disease that can be depended upon; but what its operation is, or how it cures the disease, has been long a point undiscussed, and *sub judice lis est.* A question, therefore, naturally arises, how it acts on the venereal virus, whether by destroying its quality, or, by producing an evacuation, expelling it out of the system? Each of these opinions have had their respective supporters. Among those who adhered to the latter, is the late learned and ingenious Dr. Cullen, who supposes that mercury acts as a universal evacuant, which changes the whole mass of the fluids, and evacuates, in particular, any foreign matter that may be mixed with them; and the shortest way, says the Doctor, in producing this effect, is probably by exciting a diaphoresis. As a proof of this, he introduces, in his Lecture on Syphilis, the following very interesting medical anecdote. "An officer being in a campaign, was afflicted with a lues, and insisted, upon the eve of battle, of being immediately freed from his disease. The regimental surgeon, in compliance with his earnest entreaties, anointed him at once from neck to heel, using it to such a quantity as contained an ounce of quicksilver in one night. The consequence was, that the patient broke out into a most profuse and continued sweat, which in a few days removed all his symptoms. I will not vouch for the truth of this, nor do I propose it," con-

tinues that admirable practitioner, "for your imitation. If we may trust to it, it points out the good effects that are to be derived from using mercury, so as to support all the outlets; and this may be obtained by employing acrid preparations of it, which promise to be good remedies."

Hence we may account for the good effects of corrosive sublimate, which, though a valuable remedy, is not so effectual with us as has been represented by Van Swieten, and its first introducers into practice. Probably this preparation of the mineral not succeeding in many instances, may have been owing to its determination to the skin being checked by the patient exposing himself to the cold air whilst he was under a course of that medicine; and therefore, if the cure be attempted with that active medicine in cold weather, without confinement, we may be disappointed. This remedy, we also imagine, may fail from some peculiarities of temperament, which hinders it from affecting the skin; as we know there are some people in whom it is very difficult to promote perspiration. However much this medicine may be held in disrepute, there are many cases on record, where it has been given with strong decoctions of sarsaparilla and mezereon, under a strict observance to a low diet; and with confinement to the house, and

and keeping warm, have removed the most obstinate venereal complaints, where every other remedy had failed.

Practitioners of late have preferred the milder preparations of mercury to this acrid one, on account of the violence of its nature; even when joined with opium, it produces effects of the worst kind, such as griping, purging, tremors, head-ach, &c.; for which reason, it is now almost totally laid aside: however, I have seen it employed with great success in venereal eruptions of the skin, and in deep seated ulcers. I rather apprehend its failure is more owing to the injudicious mode of prescribing it, than to any fault of the medicine itself. It ought never to be given to the weak and irritable, nor to those who are subject to pulmonic affections; but to the strong and healthy, the sublimate may be administered with great safety. The quantity to be begun with ought not to exceed one-sixth, or at most, one-fourth of a grain a day, at the same time diluting largely with barley-water, rice-gruel, decoctions of burdock, sarsaparilla, &c.

With respect to the operations of mercury on the system, I apprehend that it acts not so much by evacuating the venereal virus, as by uniting with it chymically, and forming a compound, whose properties are rendered perfectly innocent, and entirely differing from, and independent of,

the qualities which either of the substances possessed before their union ; and which afterwards may either remain for a length of time in, or be expelled, the system. This theory of its operation seems to be as consistent as any yet fabricated ; for was it to pass off by the skin, a preparation of antimony would answer the purpose more effectually ; was it to be expelled the system by the intestines, we are provided with much better purgatives ; or did its good effects depend on an increased secretion of saliva, tobacco might equally answer that intention. I flatter myself that this theory will appear to be well grounded, on the consideration, that mercurial applications will in general cure local affections. By advancing this doctrine, we should perhaps be able, not only to account for a few grains of mercury relieving sometimes the most excruciating pains in the bones, but also why mercury, taken internally, removes venereal ulcers without any external application.

In exhibiting mercury, one material circumstance is to be attended to—the quantity to be introduced ; this has likewise been a subject of debate. If we admit that it has the power of uniting with the virus wherever it meets it, and destroying its deleterious qualities, it ought not to be given in such proportions as to be expelled the system by purging, immoderate sweating, nor by an

an increased secretion from the salivary glands. Salivation, therefore, but under certain circumstances, which we shall presently speak of, should always be avoided, being undoubtedly a tedious, cruel process, and unnecessary for the cure, both from analogy and experience.

From Analogy.—If mercury is administered in such a quantity as to pass off by any of the different excretories of the body, we are disappointed in our expectations, *ex. gr.* We exhibit Peruvian bark for the cure of intermittents; if it is carried off by stool, we add opium and aromatics to prevent its purgative effects. Therefore, if we give mercury with a view that its action should destroy the effects of the venereal poison, by a species of attraction, which takes place between them in the body, it is evident then, that the more mercury we can have to remain in the system, in a given time, until the virus is sufficiently saturated, the more certain shall we be in destroying it. It should, therefore, be administered in such a manner, and in such quantities, as to produce one or the other of the following appearances: 1st, A hardness, fulness, and a moderate frequency of the pulse: 2dly, Fœtor of the breath, with a soreness of the mouth and gums; or, 3dly, An abatement of the symptoms without any of the preceding phænomena. We are possessed of no other criteria whereby we can judge of the quan-

tity of this mineral to be depended upon. Therefore, any one of these appearances, I should conceive, is a sufficient and satisfactory test, that the system is under the influence of mercury. When we have got any of these characteristics of its operation, there is no occasion for pushing it any farther; since the supporting any one of them for a few weeks, will carry off most instances of lues, and even those that are pretty extensively diffused over the system.

From Experience.—This will warrant me in asserting, that the evacuation produced, is often an obstruction to the cure, for mercury cures sooner, and with greater certainty, when the strength is but little, than when it is much reduced by it: having several times bore testimony of the failure of salivation, in curing the disease, and when it was administered in such a manner, as to produce one or other of the above appearances, with as little sensible evacuations as possible, succeed.

In whatever manner or form we are determined to administer mercury, salivation ought to be guarded against; for, however strongly its advocates may reason in favour of this mode of treatment, it is erroneous to imagine, that by salivation all the poison is carried off, and the disease by that means radically cured; just the contrary, in my opinion, takes place. It is true, indeed,

deed, that if salivation is brought on, the patient will often find all the symptoms disappear, and of course be induced to think himself cured; but some months, nay, sometimes only a few weeks afterwards, he will find that he is deceived, for the symptoms will return with increased violence. No doubt, but if the malady is of a slight nature, it may by this method be eradicated; yet, from repeated observations, I may venture to affirm, that those cures affected by salivation, never can or ought to be depended on.

The means of preventing salivation may be comprehended under the following heads: 1st, By beginning with mercury, in small doses, and increasing it gradually, until there are evident marks of its having entered the circulation; and when these occurrences take place, by intermitting the use of mercury until they cease: 2dly, By avoiding exposure to cold or damp air, particularly at night: 3dly, By indulging the patient with a free and generous diet, and a moderate use of wine, if he is not naturally of a full and phlogistic habit.

In this way the constitutional disease may be generally cured in six or eight weeks, in the two first stages of its progress; and where the disease is advanced beyond these, and affects the bones, this period of treatment may be extended to three or four months. In all cases we are to judge

judge more from the appearances than from the time the medicine is administered; and it is a proper rule to lay down, that the medicine be continued for some weeks after the total disappearance of the malady. The great error at present, is rather in shortening mercurial courses too much, and in not carrying them on in a regular and steady manner. From this cause more failures of cures occur than from any other, and we find patients, after going through repeated courses of mercury, without effect, often cured in the end by a single one continued in, for a proper length of time, with steadiness and perseverance.

But the want of success in curing venereal complaints, independent of the exhibition of mercury, may arise from a constitutional fault, which mercury, while it cures the venereal symptoms, is apt to exasperate. This fault is generally a scrophulous disposition of the habit, and as this habit is always accompanied with a thinness of solids, and acrid state of the fluids, by the action of mercury, the former become still more thinned, and in a dissolved state, and the acrimony of the latter so exalted, that the original venereal ulceration becomes rather more extended than placed in a disposition of healing, by the very means of cure. In no situation is this met with so frequently as at sea, where many circumstances contribute to exasperate this constitutional diathesis. The first

of

of these, viz. cold and moisture, give occasion to the appearance of scrophula on land. The second, or the vitiated state of diet, adds to this, by producing at the same time a tendency to scurvy. In the treatment, therefore, of venereal patients at sea, a naval practitioner has much to combat. Mercury must never be carried farther than the state of the system seems to warrant, and whenever unfavourable appearances supervene, the course must be interrupted, and such medicines employed as will counteract the morbid tendency of the constitution. It is on the proper discrimination of this, that the success of venereal practice at sea will depend, and too much attention cannot be paid, to mark the distinctions between constitutional and specific symptoms. Much experience is often necessary to decide this.

NAVAL DISEASES.

Introduction to Naval Diseases—recapitulation of their causes—consideration of two evils of minor consideration, namely, sea-sickness, and intoxication.—Sea-sickness—its nature and symptoms—period of its duration—its palliative treatment.—Intoxication—consequences attending it at sea—propensity of seamen to drunkenness—predisposition it affords to other diseases—treatment of intoxication as a disease.

In the former part, the general means of the Prevention of Diseases at Sea were considered; and, from the view then taken of the subject, it has been made apparent that the causes of these diseases may be referred simply to three heads; viz. the confined situation at sea—the imperfect diet of seamen—and their occasional excesses. In respect to the first, every thing surrounding them is apt to produce what we understand by a septic tendency, or that state of the body which predisposes to the disease termed *scurvy*. However pure the atmosphere at sea, still it gives a strong disposition to this morbid state, which is increased by the confined ventilation of the ship, loaded with other impurities, and by the damp

damp exhalations which every way surround them.

In regard to the second head, namely, the imperfect diet of seamen, unless where the navigation is confined to coasting voyages, the food is entirely of a gross viscid nature, and calculated to promote the action of the cause already stated. Relatively to the third head, or the occasional excesses of seamen, it is well known that they are a description of people whose conduct is very apt to run into extremes. Regardless of health, they court the pleasures of the present moment, without paying any attention to the *future* consequences; and to the former causes, therefore, are frequently superadded, a latent venereal taint, a worn out constitution, and other circumstances of the same nature, which give an additional violence or irritation to every other morbid excitement.

With these circumstances then constantly in view, and particularly that state of the habit as it has been described, which may perhaps be emphatically called the *maritime pre-disposition*, we shall now enter upon the history and treatment of the diseases of seamen as they appear on the different stations to which fleets are appointed. But previously to this, two evils of less magnitude my be properly introduced; the one, the

first

first inconvenience of a sea life, to wit, sea-sickness; the other, the too frequent attendant of it, intoxication.

Sea-Sickness.

This complaint consists chiefly of a convulsive affection of the stomach. It is attended with great nausea and vomiting, and is occasioned by the irregular motion of the vessel. With very few exceptions, it attacks all seamen on their first voyage; and the degree of it is generally proportioned to the size of the vessel, it being most violent where the vessel is small, and least so in large vessels, on which the waves make but a slight impression. Some persons, however, are more liable to suffer from this inconvenience than others. Those in the prime of life, and of a fair complexion, have been remarked to be most susceptible of its attacks, while old persons, and those of dark habits, are least subjected to it. The duration of this affection is very uncertain, its continuance being generally not above a day or two; but in many cases it lasts for weeks, even for months, and at times during the whole of the voyage; nay, it sometimes happens, that seamen who have spent years on the watery element, suffer always an attack of it in stormy and tempestuous weather.

The

The symptoms which attend this ailment are head-ach, slight fever, intense thirst, a quick pulse, and the rejection of every thing, whether solid or liquid, received into the stomach.

Though time is perhaps the only cure, various remedies have been directed to alleviate this complaint. One of the simplest is a draught or two of sea water, which, by clearing the first passages, gives effectual relief. A tea-spoon full of æther in a glass of water, will be equally efficacious. The little food taken at a time, should be eaten cold, and highly seasoned. The drink should be in sparing quantity, and well acidulated with citric acid: the clothing should be warm; and the deck be kept as much as possible by the patient, till this uneasy feeling be removed. It is constantly aggravated by indolence and inactivity; and the same effect is perceived to result from uneasiness or depression of mind.

Intoxication.

Intoxication is a frequent evil amongst seamen; and the consequences to which it leads, render it a proper subject of medical investigation. It proves frequently fatal at once, or else induces fever which is equally mortal in its effects, and especially when it prevails in a warm climate.

climate. Many circumstances give a propensity to this indulgence at sea. The men in general embrace at an early period this course of life, without judgment to direct them in the line of conduct they ought to pursue. The habit of grog drinking, is a practice they immediately acquire; and the use of spirits, when they can be procured, gives them a temporary alleviation from the effects which the cold and moisture to which they are exposed produce. Their feelings being thus relieved, this indulgence becomes a confirmed habit. The propensity to it is farther favoured by that hilarity, to which they are strongly incited by the hardships they have undergone: when the joyful occasion presents itself, they sacrifice what they have dearly earned; and as the mirthful hour is always accompanied by excessive drinking, this, independently of other debaucheries, proves the after source of disease. On this account it would be well, if nothing but malt liquor were ever distributed in the Navy; and the observations we formerly made in another part of this work, may be again repeated, that the malt liquor should be made of a stronger quality, so as to induce the men to make use of no other beverage.

Intoxication is not only a disease of itself, but renders, as we have formerly noticed, the effects of febrile contagion more active on the system; and

and where exposure to marsh effluvia takes place, intoxication is one of the chief causes, by which its attack is favoured.

The treatment of intoxication is one of the most frequent duties of a Navy Surgeon; and demands immediate relief. In the fit of stupefaction, it is but too usual for the person to lie in a horizontal position, or, what is much worse, with his head hanging down *. This posture ought to be altered, and the head and shoulders kept erect. The place ought to be freely ventilated, and cool, the neckcloth, and collar of the shirt unbound. No persons, except those who are to give assistance, should be allowed to crowd around the patient. The next step is, to provoke vomiting by the most expeditious means, such as tickling the throat with a feather, or the finger. If raw spirit has been the inebriating liquor, and the patient still retains the powers

* A striking instance of the sudden and fatal effects of such a position, in cases of intoxication, occurred on board one of our frigates, on the N[illegible]station, in the course of the war with America. [illegible]es, each of whom, after he had intoxicated him[illegible]liquor called *calibobus*, (a mixture of rum and spruce [illegible]swallowed at a draught three pints of rum, one fell on a [illegible]es., with his head reclining downward, and was instantly suffocated; while the other, whose back was supported by the side of the vessel, was with some difficulty recovered.

of swallowing, he should be made to drink plentifully of water, either warm or cold, and the tickling of the throat should be then renewed, to excite the vomiting; a measure not to be given up, till the whole of the contents of the stomach are discharged. When the bloated countenance, and stertorous breathing, indicate danger of apoplexy, other means must be also had recourse to, particularly blood-letting from the temporal artery, from the jugular vein, or even from the arm, by a large orifice. But this remedy requires some caution, on account of the degree of collapse or debility that is apt to succeed. Cold applications will be also useful to the head itself, as clothes wrung out of cold vinegar and water, often renewed. Snow and ice, if at hand, are also good applications for the same purpose: but the unloading of the stomach is in all cases the quickest remedy.

Where, in consequence of the insensible state into which he may have been brought, a person has slept long exposed to cold or rain, his treatment must be regulated by the degree of debility induced. Thus the extremities, if frost bitten, should be rubbed with ice or snow, and their temperature only gradually increased. The same caution should be observed, in bringing the person into the heat of an apartment, which should be very low at first. The same directions apply to

to whatever is given the patient internally; it should be at first in small quantity, and gradually increased.

Instances have occurred of a sailor having fallen overboard in a drunken fit, and having been picked up sober. From this fact it would appear, that cold effusions of the body, may be a useful application against drunkenness.

DISEASES

OF THE

CHANNEL SERVICE.

Diseases of the Channel Service—importance of this station—division of its diseases into those of the winter and summer seasons—origin of winter diseases.

Fevers—description of typhus, as the most general form—mortality from this disease—remarks on the critical days of fever—importance of the proper treatment of typhus—divided into two stages of its progress—first stage, treated by antimonials—second stage, by remedies supporting the strength of the system—the use of wine—nourishing food in a soluble form—palliation of particular symptoms—affection of head, by blisters—difficult respiration, by ditto—diarrhœa, by opiates and astringents—watchfulness and irritability, by antispasmodics—remarks on the bark—on cold bathing—objections to it at sea—advantage of the bark in the convalescent state of typhus.

Varieties of fevers—all fevers of a continued and remitting form differing only in degree—depending generally on the same cause—proof of this.

Intermittents or agues—division of intermittents—Tertian form the most common—peculiarity of intermittents—description of the paroxysm of an intermittent—remarks on the crisis of intermittents—treatment of intermittents—conducted in two ways—1. By shortening the fit—remedies for this purpose—opium—mode of exhibiting it—emetics—2. By preventing the recurrence—remedies here—use of tonics—bark—treatment of morbid symptoms by its use—combination of it with other substances—astringents—stimulants—aromatics—

proper

proper period of curing an intermittent—cautions in regard to its recurrence.

Inflammations—rheumatism—its description—divided into two species—acute species—constitutions liable to its attack—its causes—progress of its symptoms—chronic species—treatment of both species—lumbago—sciatica—feigned rheumatism.

Catarrhal affections—their consequences—symptoms—nature of the matter discharged—general treatment—palliation of symptoms.

Dysentery—frequency of it at sea—complicated with other diseases—divided into two species—its symptoms—period of its termination—critical appearances—treatment of the acute form—by mild purging, by antimonials, by palliation of pain and irritation—treatment of the chronic species—by opiates and astringents, by bitters and tonics, by mercury.

Small-pox—frequency of it at sea—propriety and advantages of general inoculation—scruples of seamen on this head—cautions necessary to prevent its spreading—treatment at sea—consequences of small-pox.

Consumption—causes from which it peculiarly arises at sea—constitutions most liable to it—mode of treatment at sea.

Scurvy—does not appear in the channel service, unless after a long cruize—use of the nitric acid—pains arising from this remedy.

Venereal disease—generally a primary affection in the channel service—treatment easy at sea—necessity of the combination of antiseptics, with mercury in the cure of lues at sea—other diseases only sporadic in the channel service.

Summer diseases of the channel service—difference of treatment—table from Dr. Lind of the proportion of channel diseases—ditto from Dr. Trotter.

THE most important station to which a fleet can be appointed, is certainly the channel ser-

vice, seeing that on its conduct in this quarter, the existence of the empire may be said essentially to depend. Experience also, during the present and last wars, has shewn the necessity of such a fleet keeping at sea in all weathers, and with a watchfulness which the alertness of the enemy renders absolutely necessary. On these accounts, the exposure of men to all the evils of a variable and tempestuous climate, becomes more unavoidable than formerly; and the increase of diseases in this service, may be consequently expected to arise in the same proportion, and with augmented violence.

The diseases of the channel service have been divided into those of the winter, and those of the summer seasons.

The former consist of fevers and inflammatory complaints. The latter, of those which assume chiefly a nervous and putrid form. Winter, perhaps, though not so unhealthy on shore, is the period when diseases prevail very much at sea. From the unavoidable exposure of the person in tempestuous weather, and the little opportunity there is to shift the apparel, so as to avoid the consequences of cold and moisture, which are then so extreme, disease becomes a natural and frequent effect. This effect is augmented by the very variable state of the British climate in the channel service, where the weather seldom

seldom continues two days alike, and often passes through several changes in the course of twenty-four hours.

FEVERS.

Typhus, or Common Fever.

The most common fever that occurs during this season, is that particular species, the first appearances of which we have already described, under the article Contagion; and the progress and mode of treatment of which come now to be detailed. To the first symptoms described, soon succeed an exacerbation of the febrile heat, and of the state of the pulse, joined with strong marks of determination to the head. Thus the skin acquires a dry and parched feel, the tongue, hitherto not much changed, becomes hard and furred, and the secretion of the saliva as it were suspended. The confusion of head, and tendency to stupor, increase, accompanied with more or less delirium, which, being at first transient, becomes gradually more continued. The state of the bowels and urine is irregular, but as the disease proceeds, diarrhœa comes on. Symptoms of putrescency now make their appearance, consisting in small livid spots, like flea-bites, dispersed over the skin. The stupor of head be-

comes now permanent; great anxiety prevails about the precordia; and frequent sighing takes place: hemorrhage also arises from different parts, especially from the gums and intestines, being in the latter case conjoined with diarrhœa; and hiccup soon succeeds, to terminate the scene.

The causes of this fever have been already enumerated at some length; and it is proved to be in general the effect of a specific contagion, rendered active by various debilitating causes.

In forming our opinion on the termination of this malady, we are directed by the degree of violence in its symptoms; and indeed, there is no case so desperate in which hopes of recovery may not be entertained. For, when compared with other diseases, the recoveries from fever are by far the most numerous.

In the treatment of fevers, however observation may have sanctioned the doctrine of critical days, it is little attended to in directing the cure. That the actions of the body, whether healthy or diseased, have a tendency to observe certain periods, and to go through a certain progress, is evinced by abundant proofs. Whether this goes, however, to the extent that many have supposed, may reasonably be doubted. A great variety of circumstances may interrupt, or altogether prevent, the occurrence of these appearances;

pearances; but, the general tendency towards a crisis in fevers, is evident to the most superficial observer. It must at the same time be allowed, that every attempt which has hitherto been made to explain this law of nature, has been fruitless. We may, notwithstanding, conclude, that however varied the appearances of fever may be, those of the same climate are constantly observed to be similar to one another, although they differ in their degree of vehemence in different regions.

As the form of the fever now described, is the one which most frequently occurs in the channel service, so its treatment should be well understood by every naval practitioner. This disease may in its progress, be properly divided into two stages, the first of which comprehends the early symptoms, till the state of stupor commences. The second begins with the fixed febrile action, and when the affection of the head seems to be the predominant symptom.

In the early stage of this fever, as well as in every other, the first step is to cleanse the stomach and bowels, which is useful in two points of view: first, as it unloads the *primæ viæ* of any noxious contents which may second the action of the morbid cause; and, secondly, by its stimulus, opening the different excretories, which certainly display a degree of weakened power in expelling

pelling their discharges. For this purpose antimonials have generally been the favourite remedy, given either in the form of the antimonial solution, or powder, or else James's powder, which is well imitated by rubbing the tartarised antimony with magnesia or chalk. After full vomiting, in the first instance, the antimonial should be continued in smaller doses, and during its use, the patient should either lie in bed, or be kept moderately warm, and drink of thin diluent liquors; by this method the medicine will be less liable to act on the stomach and bowels. But it may be observed, that it is only in this early stage of the fever that antimonials are really useful.

When the second stage is commenced, as marked by the degree of stupor, recourse must then be had to other remedies; and the great point is to support the strength for a certain period, both by diet and medicine.

The chief remedy with this view is wine, in liberal quantity, suited to the circumstances of the case, but given in small doses at once, and judiciously repeated. Along with this, a nourishing diet is to be administered, in the most soluble form, and such as is most grateful to the patient. By this general plan a cure will, for the most part, be effected; but in the progress of the disease particular morbid symptoms will also require special

especial treatment. Thus affection of the head and difficult respiration will be relieved by blisters; diarrhœa by opiates and astringents; and watchfulness and irritability by antispasmodics.

In this fever, the bark has been highly recommended by some authors, but its operation is clearly analogous to wine, and as it is apt to disagree with the stomach in the irritable state of fever, and even to bring on diarrhœa, it will not be found so beneficial as this domestic article.

Cold bathing has also been recommended as a remedy to be here employed, during the excess of the hot stage, or increased febrile action. But though more beneficial perhaps in this, than in the fevers of warm climates, from its less rapid progress to debility, yet the situation of a sea life does not admit so well those after conveniences in the management of the patient, which are necessary to render it completely successful. Cold effusion or washing may occasionally be ventured upon in the early stages of the disease; but it will not be always prudent to carry it farther.

Where the bark is to be used here, it will be better confined to the state of convalescence than exhibited during the actual progress of the disease.

VARIETIES OF FEVER.

Such may be considered the general treatment of fever in this climate, whether of a continued or a remitting form, and all fevers of these two descriptions only differ in the appearances of increased action being greater or less at first, and consequently as shewing a stronger tendency, either to a nervous or putrid state of the system. When the former predominates, the above treatment will fully apply. When the putrescent disposition more strongly appears, then antiseptics, particularly the vegetable acids, must be conjoined with the preceding plan of cure.

As a proof of the similarity of all fevers in their nature and causes, and that the treatment only requires to be varied in a certain degree, according to the existing circumstances, we formerly noticed, that in the progress of an epidemic, as it begins to decline, the continued fever changes or assumes the form of a remittent or intermittent, which renders the difference between human effluvia and march miasmata very doubtful. But without inquiring farther into this matter, we shall next investigate the history and treatment of intermittents or agues, as they appear at sea.

INTER-

INTERMITTENTS OR AGUES.

Intermittent fevers differ from the continued, in their possessing a clear intermission from febrile symptoms for a greater or shorter space of time; or, in technical language, they consist of a succession of paroxysms, with a distinct apyrexia between them.

A common division has been made of intermittents into the vernal and autumnal, from the different periods of the season at which they are liable to make their attacks. The most usual form of them is that of the tertian type, which is the most general in its appearance at sea in the spring, or end of winter. The intermission here is forty-eight hours at a time; and what is peculiar to this form of fever, is, that after it is removed, a pre-disposition is still left in the habit, which favours its recurrence.

Every fit of this fever is divided into three distinct stages, termed the cold, hot, and sweating stages; and the accession of this fit of the tertian type is generally at noon.

In the cold stage a remarkable rigor comes on, —there is much pain of head, back, and loins, difficult respiration, and a quick contracted pulse, with vomiting: this vomiting forms a termination to the stage.

A sense

A sense of heat, the commencement of the hot stage, is then felt from the back; the pulse becomes full and hard; the pain of the head increases, with the throbbing of the temples; and delirium frequently supervenes. Great thirst and whiteness of the tongue prevail; and the stomach also feels painful and swelled.

When a profuse sweat begins to flow, the third or critical stage has commenced; and this sweat continues commonly for three or four hours, during which, all the former symptoms of fever are relieved, and an intermission then begins, continuing for the period already specified, and leaving merely a slight head-ach, a sense of debility, a bad taste, an impaired appetite, and an inclination to sweat.

In this climate, intermittents are seldom dangerous; and are principally ascertained by the regularity of their stages. An eruption on the lips is here reckoned a critical symptom.

Owing to this recurrent nature of the disease, the treatment consists either in shortening the fit when commenced, or preventing its recurrence during the intermission.

The first of these objects is accomplished by exhibiting emetics during the cold stage, which should be given in large, not divided, doses, and will best suit those cases in which the debility is not great; or by opiates administered in the hot stage,

stage, to the quantity of fifty or sixty drops of laudanum; or, according to the plan of Dr. Trotter, beginning with a moderate dose of thirty drops, on the accession of the paroxysm, and repeating this once or twice, at the distance of twelve or fifteen minutes between each dose, till the patient is relieved. The effect of this practice, Dr. Trotter remarks, was to give, in a few minutes from the exhibition of the medicine, an exhiliration of spirits, which was quickly succeeded by a relaxation of the surface; the countenance became cheerful, and a flush was spread upon the cheek; the pulse, from being weak, quick, and sometimes irregular, became less frequent, full, and equal; an agreeable warmth was diffused throughout the whole frame, and every unpleasant feeling vanished, sometimes in a quarter of an hour. Sleep now and then followed a large dose; but generally this did not happen. As soon as any symptom indicated another paroxysm, whether on the following day, or not till the tertian interval, the tinct. opii was repeated in the same manner as recommended in the former fit, and always with equal success, so that the patient seldom experienced much tremor or shaking. The second paroxysm was commonly an hour or two later in the day than the preceding one; and but few instances were met with, where any indisposition indicated a third attack at the expected

period

period of accession. The patients themselves were not a little surprized at the sudden change of their sensations, by so small a quantity of medicine. These were certainly the completest cures that ever came under my observation, and may be justly said to have been effected, *certe, citæ, et jucunde.*

The practice during the intermission will be equally successful, when properly directed, and depends on increasing the strength of the heart and arteries by the use of stimulants, tonics, and even mechanical irritation. The most general of these remedies, however, have been tonics, particularly the bark, which should be exhibited in doses of half a dram every half hour, beginning four hours before the fit is expected. The morbid effects arising from the bark may be easily obviated, by joining it with other substances, according to the particular uneasy symptoms it produces. Thus diarrhœa will be prevented, by adding an opiate to it; and costiveness, by rhubarb, or some of the neutral salts. Where it is rejected by the stomach, it may be given in clysters, or the addition of camphor will render it lighter, and cause it to sit easier. Besides this, where the disease has been obstinate, its powers have been increased by the combination of many other substances, of an astringent, stimulant, and aromatic nature, as alum and nutmeg, nut-

meg

neg and mercury, the styptic powder, oak bark, chamomile, gentian, galls, St. Ignatius' bean, serpentaria, mustard, &c. &c.; and when these fail, even metallic combinations have been employed, as copper and arsenic, particularly the latter, in form of the tasteless ague drop, as prescribed by Dr. Fowler.

The means employed for the cure of an intermittent should never be tried until the disease is fully formed, or until two fits have elapsed, when the bark may be administered with safety; since the great danger arises from too much precipitation in the cure of vernal intermittents. Three or four ounces of bark will generally be found sufficient to remove the fever; and the medicine should be given in smaller doses for some time after it has disappeared. The great point in the successful treatment of intermittents by the bark, is, to clear the *primæ viæ* in the first instance, so as to prevent congestions in the hepatic region, which are so apt to occur.

The attack of this disease, as formerly noticed, leaves always a tendency to recur; and at all times, cold and moisture should be particularly avoided, and changes of weather obviated by increased clothing, especially when the wind blows from the east, for then, patients once subject to the disease are liable to a slight attack.

INFLAMMATIONS.

Rheumatism.

Next to fevers, the most frequent form of disease in the Channel Service, consists of various kinds of inflammation, and one of the most common of these is rheumatism. The laborious duty of seamen, and their constant exposure to weather, together with the accidents to which they are liable, render this a frequent disease. That part of the crew, however, whose duty lies in the boats, is more exposed to it than any others; and it is to be lamented that some accommodations for drying their clothing have not been made at the landing-places at every sea-port *. It is also particularly apt to attack the crews who return from a warm climate to the Channel in cold months; and it would be much for the interest of the Service, with a view to its prevention, that a stock of slops should be always in reserve, on such occasions, to be served out to the men.

This disease is manifested by wandering pains, affecting the larger joints, and shifting in the course of the muscles connected with them; which pains are much increased on motion. It is

* With the exception of Portsmouth, where there is a house provided for this express purpose, and which has been found highly useful.

divided

divided into the acute and chronic, a division necessary, on account of the difference of treatment.

The acute rheumatism generally attacks the younger part of the crew, or all those whose ages do not exceed thirty-five years. The sanguine temperament is more subject to it than any other, and its attacks commonly prevail during the vicissitudes of weather: the right side of the body has even been observed to be affected oftener than the left. Its causes evidently arise from the sudden application of cold, when the subject is heated, or from changes of weather, as already noticed, producing the same effect; and both these causes will be favoured by excesses on the part of the patient.

Acute rheumatism is clearly an inflammatory disease, its first symptoms commencing with a considerable rigor, and a hard full pulse. Other febrile appearances also supervene; but the head is usually clear, and there prevails no internal sickness of any kind. Every evening an increase of the symptoms takes place; and during the night the pains are most severe, changing their situation, and leaving on the part affected a degree of redness and swelling.

The departure of the fever does not entirely remove the disease, seeing that some remaining degree of pain and stiffness in the joint is still felt, and recurs on every alteration of weather, to such a degree that the patient can even prognosticate from this sensation the change which

is about to take place. This affection of the joint constitutes the second species, or chronic rheumatism, a complaint which often continues, with some intermission, for the remainder of life.

On account of the inflammatory disposition of the first species, bleeding forms a leading indication in the cure ; but should be confined to the beginning of the attack, and to the cases in which there exists much topical pain. When it is delayed beyond this early period, its good effects are more doubtful. These bleedings may be succeeded by local applications of a similar nature to the affected part. Blisters have been found to be equally useful ; but fomentations, experience has proved, increase the pain. A plentiful use of diluents, joined with nitre and other refrigerants, has been very properly recommended in these cases. Indeed, total abstinence, and confining the patient entirely to water gruel, are the best remedies. Sweating, though it tends, after the first evacuations, to remove the disease, is very apt, by leaving the skin in a relaxed state, to occasion its recurrence upon the least application of cold.

When the disease has fully attained its chronic state, it then forms a local affection, distinguished merely by stiffness, distention, and considerable immobility in the joint, insomuch that at length a kind of crackling noise is heard on moving it. A long train of rainy and stormy weather

in

in the Channel renders the body particularly liable to this form of the disease; and the muscles of the joints near old wounds, bruises, or broken bones, are the parts more readily affected by it. In this stage, warmth of every kind must be applied to the part, so as to excite its action. The applications commonly used for this end, consist of the essential oils, as those of guiacum, &c.; of volatile alkali and salts; turpentines, &c. Friction will also be here employed with advantage, and, proceeding on the idea that a particular fault exists in the habit in these cases, soap, mercury, and mineral waters, have also been had recourse to. Bathing and exercise are likewise successful remedies, but lose a part of their customary effect when tried on patients subjected to a sea life.

Besides these appearances of the disease, two other species occur to be mentioned. The one, the lumbago, which attacks the lumbar region, with a fixed pain shooting to the *os sacrum*, or joint of the thigh, so acute, that the patient can neither lie in bed nor stand upright. This affection is of an acute nature, and is to be treated in the same manner as the inflammatory species of rheumatism. This species, however, is often feigned by seamen, for the purpose of effecting their discharge, and is one of the chief sources of their tricks and deceptions.

The origin of it is generally traced by them to some previous hurt or fall at a considerable distance of time. The seat of their complaint they confine to the loins; and to render it more formidable, they pretend it is accompanied by an incontinence of urine. Notwithstanding their tales are in general easily detected by an attentive cross-examination, still obstinacy will carry them great lengths; and the fictitious complaint will often in the end be rendered a real disease.

The other species is the sciatic, being a violent fixed pain, which extends from the joint of the thigh in the course of the sciatic nerves. This being of a chronic nature, is removed by means similar to those recommended in that state of the malady.

CATARRHAL AFFECTIONS.

Next to rheumatism, catarrhal affections are, during the winter, the most frequent diseases that occur at sea. They are attended with more or less fever, which is of the inflammatory kind; and they often terminate, where there is a predisposition to it in the habit, in pulmonary consumption, or where the habit is rendered liable to it by an excess of vegetable acid previously employed in the cure of scorbutic complaints.

The symptoms of catarrh are, a sense of stoppage

page of the nose, and a dull pain of the forehead immediately above the eye-brows. The eyes themselves are watery and inflamed, and cannot well bear the light; at the same time that an acrid discharge flows from the nose. The throat also is somewhat inflamed, so as to occasion a degree of hoarseness. The breast feels sore and tight, with a dry cough, most troublesome from evening to morning. As the disease proceeds, an expectoration takes place, and pains are felt in different parts of the body: the fever then abates, but the cough continues for some time, and the taste remains vitiated.

This disease is always ready to appear on sudden changes of weather, and attacks every constitution; although those already described are most liable to it. It is also at times epidemic, when it is known by the name of the influenza, and has been then considered as depending on a specific contagion for its cause.

This disease is seldom dangerous, unless where the predisposition to consumption prevails. The matter discharged consists entirely of inspissated mucus, altered somewhat, by the process of inflammation, into a puriform state, and containing a greater quantity of albumine than in health.

The treatment of this affection depends entirely on antiphlogistic principles. Where it is slight,

little else will be necessary than directing an abstinence from animal food, a proper degree of warmth, and a free use of diluents. When, however, the disease is more violent, then a single blood-letting may be necessary, in order to prevent any affection of the lungs; but the chief remedy to be depended on here will be the use of mild diaphoretics, which, so soon as they procure a determination to the skin, will relieve the symptoms. Attention must at the same time be paid to the state of the bowels; and if the expectoration is not very free, it may be promoted by the usual pectorals of the attenuating class, particularly squills and gum ammoniac. Where, however, the cough, on the contrary, is severe, and the discharge thin and acrid, demulcents will be more proper; and they may be joined with opiates, which are best here in the form of troches. Blisters will rarely be necessary; but attention will frequently be found requisite to the convalescent state of the malady, as there is often left a considerable degree of weakness, greater than we can account for from the apparent severity of the attack.

DYSENTERY.

This disease is peculiarly liable to make its appearance after a long series of stormy or rainy weather, and when the ship has been for a considerable time at sea. Hence it is oftener met with in tropical climates than in the Channel Service; and when it does appear, it is generally in the chronic form, when the men have returned from abroad. It also often appears at the same time with scurvy; and they are associated in the same person. The disease commences with a rigour, and with the usual marks of fever, by which its progress is accompanied. It is generally preceded by costiveness, and an unusual flatulence of the bowels; there prevails also frequent sickness and vomiting. The symptoms of fever often depart soon; but the bowels always continue in a weak, irritable state: the discharge, which is little at a time, varies much in its colour and consistency, being always mixed with blood and films, of a membraneous texture. Worms also occasionally are discovered in it. During this discharge no natural feces appear; and when they do, it is only in the shape of hardened scybala, the evacuation of which produces a temporary relief.

This disease depends on a specific contagion of a putrid

a putrid kind, which is highly infectious, and particularly propagated by every species of filth. Its recurrence is particularly favoured at sea by cold and moisture. Hence it, for the most part, follows a track of tempestuous weather, when the beds and clothing of the seamen continue to be much soaked in water, and when there has not been any opportunity to get them regularly dried.

One of the most painful symptoms that attends this complaint is stranguary, which arises from the constant irritation of going to stool, and which often ends in a total suppression of urine. This arises from the fundus being retracted with the rectum in the efforts made, and thus elevating the neck in the same proportion, which prevents the natural discharge.

This disease has its common termination in the acute state from the seventh to the fourteenth day: it is generally fatal where the constitution has been previously weakened by other diseases. Even where recovery takes place, it is apt to pass into the chronic form, and to continue for a considerable length of time as a diarrhœa. It is always most dangerous when epidemic. Its most favourable crisis is by profuse sweats over the whole body, with a deposition of a sediment in the urine.

For the cure of this malady two indications present themselves. The first is, to discharge and

obtund the acrid matter in the bowels; and the second, to repair their tone, injured by the continued action of the disease.

Before proceeding to the first, bleeding may sometimes be necessary; but this must depend on the apparent violence of the inflammation, and on the nature of the dysentery, since, when epidemic, it passes too rapidly into the putrid state to admit this evacuation. This point being settled, the first indication is then to be carried into effect by the use of laxatives; and, as frequent purging is required, the mildest kinds are to be preferred, as the tartarised vegetable fixed alkali, tartarised soda, or castor oil; or, instead of these, small doses of ipecacuanha, or tartar emetic, may be given. The success of these remedies is denoted by the appearance of natural feces: if they do not appear, more powerful laxatives may be substituted, as rhubarb and calomel. Emetics are here only useful when they pass downwards, and answer the same intention. The symptoms of irritation and pain are in the mean time to be alleviated by oily and emollient clysters, by fomentations to the belly, or by the semicupium and warm bath, or, still more successfully, by the use of opiates, combined with an antimonial, which is sufficiently safe, where the previous operation of the purgative is complete. Where there is much inflammation, blisters,

blisters, applied to the abdomen, may be even necessary.

When, by this practice, the symptoms of the disease are so far removed, that nothing more than an increased discharge continues, it has passed into the chronic state, and the impaired tone of the bowels must then be restored: first by opiates and astringents, the best of which last are red wine and logwood. Afterwards, when the state of convalescence is farther advanced, the use of bitters and tonics may be had recourse to: the chief of this class of medicines preferred here, are the Peruvian and Angustura barks, with the vitriolic acid, and sometimes lime-water.

Mercury, as recommended by some physicians, in the form of calomel, is more suited to the dysentery of warm climates than to the disease as it appears in the Channel Service.

In all states of dysentery, warm clothing is a necessary prelude to the cure.

SMALL-POX.

Small-pox is a disease which very often appears at sea; and is also frequently fatal. The infection is conveyed by the intercourse with the shore: seamen brought up in merchant service generally go to sea very young, and when they continue on long voyages, they often avoid entirely the contagion of small-pox till they grow up to manhood,

manhood, when being brought into his Majesty's service, and placed aboard a ship of war, they are apt to catch the disease in the manner pointed out.

The frequency of this malady in the fleet, induced Dr. Trotter to propose a general inoculation; and the success attending this practice, in the ships in which it was attempted, justified the propriety of the measure. In suggesting it, however, Dr. Trotter found it difficult to combat the scruples of the seamen, arising from religious prejudices; but since that time inoculation has been regularly performed, both with variolous matter, and more recently, with the cow-pox, a substitute possessing still greater advantages. As the subject is now so well understood, and the prejudices of the crews done away, it is unnecessary to enter farther into the subject. The chief point, wherever a case of natural small-pox appears on board a ship, is, to institute an immediate inquiry, whether the whole of the crew have already had the disease. In that case, and indeed whether they have all had it or not, the safest plan is to remove the patient without any delay, and, with him, every article that is likely to imbibe infection. But if the ship is cruizing, and this cannot be done, he should be kept at a distance from the rest of the ship's company. In this situation the boats are the best places, whether

ther stationed on the booms, or slung at the stern; and where sentinels may be placed, to prevent communication with the rest of the crew. No disease can be more disagreeable than this, when it attacks a grown up patient; and one peculiarity attends it, that it seems to be remarkably fatal to some families, without our being able to assign a proper reason for it.

The treatment of small-pox at sea may be rendered abundantly easy, as a cold regimen, and a free exposure to air, are the chief indications necessary in the cure. Indeed this free application of cold can hardly be carried to too much excess, so long as the inflammatory symptoms are strong. Cold bathing is even a proper remedy in warm climates. These means may be assisted by acid and diluent drinks. To favour maturation, it has been common to exhibit an opiate at bed-time, after the fifth day. In this manner the disease will successfully go through its different stages, in the real inflammatory or distinct species of the malady. But where it partakes of the confluent, or putrescent form, the same remedies will be necessary as for the cure of typhus fever, and powerful antiseptics, as wine, bark, and acids, must be liberally employed, to check the putrid disposition of the system. During the progress of the malady, various occasional symptoms will require a separate attention. Of these, convul-

convulsions will yield to opiates and the warm bath; sometimes to an extreme degree of cold; and difficult respiration, to the use of blisters.

The small-pox is never of itself the cause of other diseases, yet there is little doubt that it frequently brings into action certain constitutional maladies which were originally latent in the habit, particularly scrophula and cutaneous affections. This, however, is less to be dreaded at sea, as the patients are generally full grown, and the constitution more apt to resist this latent morbid influence. This perhaps may be considered as a particular advantage, in the disease attacking the patient at an advanced period of life.

CONSUMPTION.

Another disease that occurs at sea, and which is frequently the consequence of the two preceding maladies, is consumption of the lungs, or a cough with expectoration of purulent matter, attended with a greater or less degree of hectic fever. This disease is also very apt to arise from external injuries, as falls, bruises, or strains, affecting the trunk of the body: these often give no great uneasiness for a year or two; and the cause lies concealed till after the death of the

the death of the patient. Such sports, therefore, as are apt to produce this mischief on board of ship, should be prevented as much as possible by every commander.

The attacks of this disease are chiefly fatal to the younger part of the crew, or those between twenty and thirty years of age; they affect those who possess a soft muscular flesh, whose stature is tall, and who display some fault in the construction of the chest. A sea life is by no means unfavourable to the cure of this malady, and a sea voyage has accordingly been recommended as a remedy. But in the common situation of mariners at sea, it cannot be expected to be attended with the same success, on account of its being their constant occupation.

To give every chance of a cure in this hopeless complaint, such of the crew as are attacked by it should be removed, as soon as possible, from the Channel Fleet, to one going to a tropical station; and in the mean time every attempt should be made to palliate the symptoms by clothing, diet, and medicine. The clothing should be as warm as possible; and flannel should be worn next the skin: by keeping the surface open and relaxed, it will lessen the determination of fluids to the lungs. The diet should be of a mild vegetable nature, supplying a bland nourishment, and causing as little irritation as possible. The medicines

dicines should be such as are calculated to suspend the cough, and to give strength and vigour to the system. Opiates, joined with demulcents suited to the circumstances of the case, will answer for the first; and steel, in the form of Griffith's mixture, has been found most efficacious for the latter purpose.

SCURVY.

This disease, which has been treated in the former part of this work at considerable length, as a fundamental branch of marine practice, does not occur so often in the Channel Service as it does on the other stations where the voyages are longer. It is only, therefore, where a ship is kept out on a long cruize, with much tempestuous weather, and where the stock of fresh provisions runs low, that this malady is apt to make its appearance.

The citric acid, as before observed, is here the principal remedy, given in the manner prescribed. When thrown in in too great quantities, it is apt to produce at times pains in the breast and limbs, resembling rheumatic pains. The attack of these pains, instead of being a morbid symptom, may be considered as a mark of recovery; though, if very violent, they may be suspended by the use of

opiates, rather than interrupt the course of the acid.

VENEREAL DISEASE.

This disease, like the former one, forms the basis of marine practice, from its frequent occurrence, and the various forms it assumes. In the Channel Service it displays the primary symptoms with greater frequency than it falls under the care of a Surgeon in its more inveterate forms. In directing the cure, then, at sea, the Surgeon has a particular advantage in having the patient so immediately under his own eye and cognizance. He can accordingly be as particular in the diet and conduct, as in the medicine of his patient. In the cure of the confirmed disease at sea, the interposition of the acids, along with mercury, will form the most proper mode of treatment; as by this plan, the scorbutic habit of body, which occasions the system so ill to bear the action of mercury alone, will be counteracted. Hence, though we consider both the nitric and muriatic acids as unfit of themselves to complete a permanent cure of lues, yet they will be employed with much advantage here, as an antidote against the maritime predisposition pointed out. For the same reason, on the mercurial course being finished

nished, the bark should be administered to forward the progress of convalescence.

Such are the principal diseases, connected with their mode of life, that attack the British Seamen in their own climate, and are particularly distressing, or, as we may term it, epidemic, in fleets in the winter season. That other diseases occasionally make their appearance on ship-board is not to be doubted; but as they are only sporadic, and not necessarily arising out of a sea life, they do not claim a particular detail in a work of this nature. Besides, such diseases being oftener of a chronic than of an acute nature, so soon as the cruize is finished, patients of this description are generally turned over from the ship to an hospital, and cease to be under the care of the naval practitioner.

The diseases of the summer season, in the Channel Service, differ little from those of the preceding list, except that the purely inflammatory diseases are less frequent, and that fevers and fluxes chiefly prevail. The fevers also, instead of being attended with much increased action, soon pass into the stage of debility, and display

a putrid tendency. Hence, instead of much evacuation, antiseptics are early and vigorously called for, in their cure. The fluxes also are more apt to be of an epidemic nature, at this season, than in winter. The precautions, therefore, to avoid infection, should be more sedulously attended to at this than at the preceding period of the year; and, from the same circumstance, their cure must be varied, and a greater regard paid to the more putrescent disposition of the malady.

To finish this division of the subject, as it will be proper that a Surgeon should have a full idea of the proportional frequency of these different complaints to each other, in their attack in a fleet or on a crew, we shall subjoin here a table of Dr. Lind's observations on the number of patients received, chiefly from the home service, in two years, into Haslar Hospital, and shall follow it by the more recent journal of Dr. Trotter.

Table

Table made up from Dr. Lind (beginning July 1, 1758, and ending July 1, 1760), of the Cases of 5743 Patients.

Fevers, continued and remittent,	2174
Intermittents, or agues,	67
Rheumatism,	350
Lumbago,	20
Sciatic,	7
Catarrhal affections, and their consequences,	
Peripneumony,	29
Pleurisy,	11
Consumption,	360
Dysenteries, or fluxes,	245
Small-pox,	53
Scurvy,	1146
Venereal disease, and affections connected with it,	680
	5142

From this view it will appear, that of 5743 patients, 5142 were afflicted with the diseases already treated, and that only 601 out of the whole number were afflicted with casual maladies. Dr. Trotter's table is therefore very properly confined entirely to these strictly naval diseases.

Dr. Trotter's Table.

FIRST MONTHLY LIST.

Diseases.	Taken ill.	Sent to the Hospital.	Recovered.	Dead.	Present Sick List.
Fever	47	—	41	2	4
Flux					
Catarrhal Complaints	12	—	9	—	3
Rheumatism	4	—	3	—	1
Scurvy					
Venereal Complaints	18	—	13	—	5
Ulcers	10	—	7	—	3
Bruises, &c.	6	—	4	—	2
Total	97	—	77	2	18

SECOND MONTHLY LIST.

Diseases.	Taken ill.	Sent to the Hospital.	Recovered.	Dead.	Present Sick List.
Fever	3	2	—	—	1
Flux	1	—	—	—	1
Catarrhal Complaints	6	—	9	—	1
Scurvy	60	—	120	—	—
Ulcer	1	—	—	—	3
Venereal Complaints	4	—	2	—	4
Wounded Men	53	2	29	—	34
Total	128	4	161	—	44

DISEASES

DISEASES

OF THE

WEST INDIA STATION.

Introduction to West India Station—increase of mortality on this station, from the appearance of a new disease—division of the subject.

Prevention of West India Diseases—general means of prevention—by preparation, or lowering the habit, by avoiding exposure to excessive heat, to night damps; by anchoring the ship at a distance from the influence of contagious effluvia; by avoiding excesses in drink, and sleeping on deck—regulation of diet for a hot climate—ditto of clothing—difference in the mortality of the West Indies at particular periods of the season—caution in the stationing of ships for the preservation of health—where placed unavoidably in an unhealthy situation—steps necessary to avoid disease.—General recapitulation of the means of prevention.

West India Fevers.

Ship fever, or typhus—peculiar symptoms of this fever—treatment in a warm climate—state of convalescence after this fever.

Bilious Remitting Fever—most frequent in its attacks in harbour—resembling the intermittents of cold climates—history and symptoms of the disease—peculiarities of it—general treatment—great object to procure a remission, and take advantage of it.

Malignant Yellow Fever—fatality of this fever—history and symptoms of it—source of its contagion—progress or gradation of its influence on different classes of people—different modes of treatment—by evacuations, and afterwards by antiseptics; by the use of mercury; by the cold bath; by bleeding—conclusion, on the treatment.

Dysentery—frequency of this malady in the West Indies—inconvenience of it on ship-board—different modification of its treatment here from that of the Channel Service—advantages of mercury in the cure here—observations on other remedies.

Dry Belly-ach—not peculiar to the West Indies—history and symptoms of the disease—general mode of treatment—consequence of this disease.

Tetanic Complaints—general causes of them in the West Indies—history and symptoms of them—different modes of treatment.

Fish Poison—nature and origin of it—symptoms of it—treatment of it as a disease—consequences of it.

Venereal Disease—peculiarities in its appearance and treatment in the West Indies.

Yaws—seamen liable to this contagion—description of the disease—mode of treatment.

Scurvy—ready cure of it in the West Indies—often combined here with dysentery—particular attention to the latter.

Dr. Robertson's table of the proportion of West India diseases, and their frequency compared with each other.

Dr. Blane's table of ditto.

NEXT to the Channel department, the most important station for medical inquiry in the British Naval Service, is the West Indies, it being, of

of all the situations to which a fleet is ordered, avowedly the most unhealthy. If, indeed, we are to judge from the facts and experience of the late war, this unhealthiness is daily augmenting; and a new disease has made its appearance, the desolating effects of which have even exceeded those of the plague itself. We shall consider, therefore, the progress of disease in a fleet proceeding to that climate; and next, the diseases which chiefly prevail when it is stationed there.

THE PREVENTION OF WEST INDIA DISEASES.

Though the diseases of the West Indies are almost all of them of a dangerous nature, and therefore uncertain in their termination, yet it is both in our power often to prevent them, and, when they make their attacks, to render them less active, and less pernicious, by our management. The first step, by way of prevention, on entering a warm latitude, is to prepare the body as much as possible for the unavoidable change it is about to undergo; and this preparation should consist, first, in lowering the diet, or in living temperately, and exhibiting some mild cathartic remedies, so as to increase the discharge by the bowels. Should this not appear sufficient, and there should prevail a fulness of habit, a loss of ten or twelve

ounces

ounces of blood, more or less, according to circumstances, will be employed with certain advantage, and will be a most useful precaution.

Next to this preparation of the body, an imprudent exposure to the heat of the sun should be strictly avoided; and the same caution observed with respect to guarding against the cold and unwholesome damps at night. As contagion, either from human effluvia, or marshy exhalations, is the most active source of disease in this quarter, every ship should be stationed as far as possible out of the reach of their influence. The distance, to produce this good effect, will not be required to be great, or should be so far as not to *smell* the land *air*.

Should disease in any single instance appear, it will be prudent to ride with a spring on the cable, that the broad side of the ship may be turned to the wind; that a free ventilation may be produced; and the contagion carried at once from the diseased quarter without affecting the rest of the ship.

Hard drinking is another cause of disease which should be particularly guarded against by seamen in this climate. By increasing the circulation, it augments the tendency to a putrid state of the fluids, and thus renders the application of contagion more active.

The same admonition applies to sleeping on deck

deck during the night, which, by suddenly checking the copious perspiration from the skin, will produce the same effect as the former cause. A like precaution is necessary with respect to cold-bathing, when the subjects are over-heated, or in a state of intoxication. The shunning of these irregularities cannot be too strongly inculcated on those who have the care of seamen in these climates, they being, of all classes of men, found the most regardless of their own health. But nothing will be experienced of so much importance, in passing from a cold to the warm climate of the West Indies, as a proper regulation of diet. Instinct has taught the natives between the tropics to live chiefly on vegetables, with plenty of thin diluting liquor; and the appetite for this kind of diet is bestowed by Nature, while the grosser food is in a manner rejected by the stomach.

The first step then to be taken towards preserving the health of the crews of a fleet bound to the West Indies, should be to diminish the quantity of salted food administered to them; this will be the more necessary, because, in such voyages, a short allowance of water becomes sometimes unavoidable. To this may be added, that salt provisions, however properly prepared, are apt to acquire some degree of taint in a voyage of this description.

Next to the regulation of diet, an equal attention should be paid to that of clothing, in passing

ing to a southern climate. Flannel worn next the skin, as we formerly had occasion to observe under the article of clothing, is one of the chief preservatives of health; and it would be of the greatest benefit to the West India Service, if every sailor were to be supplied with two thin flannel shirts. These should be made long and full, and should be put on after the seamen have been in the rain, or when they are going upon any night-duty from the ship. It is a mistake to suppose that flannel is too warm a clothing for hot climates. The perspired fluid is freely absorbed by it, in consequence of the strong attraction that subsists between wool and the aqueous vapour, and is quickly transmitted through it. Consequently it favours evaporation; and evaporation, as is well known, produces positive cold; while a cotton or linen shirt, by confining the sweat, is uncomfortable, and renders the fervid heat of southern climates unhealthy and insupportable.

Besides these precautions, particular periods of the season, it may be observed, are more unhealthy and more dangerous to the health of Europeans, on their arrival than others. To benefit from a knowledge of this circumstance is not in the power of seamen, particularly in ships of war, which must sail on every emergency. This being the case, the best precaution that can be observed,

observed, is that every ship, upon its arrival at any of the islands, should, if possible, lie open to the wind. By this measure the land diseases will be avoided, fatal experience having shown that riding safely sheltered in harbours, and in secure creeks, has proved the destruction of whole fleets at anchor, while the cruizers have enjoyed perfect health. But if it becomes impossible, from particular circumstances in the service, to have recourse to this measure, and if the ship is necessarily anchored in an unhealthy situation, then the work of the crew upon deck should only take place when the sea-breeze blows, or not before sun-rising or after sun-set. Moisture is the great cause of disease in these climates, and the air, when moist, is always loaded with impurity. On this account, too much attention cannot be paid to keep the ship perfectly dry below; and where a proper ventilation cannot be kept up for that purpose, fires should be employed in the manner formerly pointed out under the article Air, when the subject was generally treated. Sleeping on shore is one great cause of the diseases of seamen, as has been already noticed, on their arrival in a warm climate; seeing that, by the effects of the unwholesome land-air, joined with the usual intemperance to which they are addicted, they are universally seized with a sickness, which generally proves to be the peculiar epidemic

epidemic of the country. To prevent this evil, it should be a constant rule that none of the men be allowed to sleep on shore; and even when on shore, they should be often relieved. But where it becomes a matter of absolute necessity that a part of the crew should continue in this dangerous situation, and even sleep on shore, then every precaution ought to be observed not to allow them to sleep upon the open ground, but in a close tent in a hammock; and this tent should be pitched in the dryest sandy situation that can be found near the sea-shore. The entrance of the tent should face the sea, and the back part which receives the land breeze, be well covered. A hut, if it can be procured, will be preferable; but no one should be permitted to reside in it, till it is well ventilated by a fire; and the men who are to be birthed in this temporary residence should both wear an additional covering of clothes, and also be made to smoke tobacco freely. In this situation it would be proper not to omit the remedies formerly taken notice of under the head of preventatives, particularly the bark and aromatics, a dose of which should be taken evening and morning, as one of the best means of resisting the effects of contagion.

Such are the general means that ought to be employed for the preservation of health, in passing from a cold or temperate climate to the southern

ern hemisphere. The great point is to lower the full habit of the European, chiefly by an abridgement of animal food, and an abstinence from strong liquors; in place of which he is to substitute in a great measure a vegetable diet, and the use of diluents. With this change of diet he is to adopt such a covering as may both preserve a proper medium of temperature, by absorbing the excessive moisture from his own body during the heat of the day, and prevent the effects of the damp chill of the atmosphere, which is so prevalent at night. When approaching the coast, the vessel should be placed so as to ride with a spring on the cable, to the end that her broad side may be turned to the wind. If under the necessity of lying in harbour, where this precaution cannot be observed, every means should be employed to keep the ship as dry as possible below, by ventilation and fires. When the people are employed on shore, and particularly when they are obliged to sleep there, preventative remedies should be had recourse to, and used regularly; nor should sleep ever be permitted in this situation, unless in a tent or hut, which has been well ventilated by fire, and where there is the convenience of a hammock.

WEST INDIA FEVERS.

Fevers form the predominant diseases of the West India Station amongst seamen ; and three species of them have been more particularly remarked—the common ship fever, or typhus—the bilious remitting fever—and that peculiar species termed, from its fatality, the malignant yellow fever.

SHIP FEVER, OR TYPHUS.

This fever is more common in the Channel than in any other Service ; in describing the diseases of which, it has been already treated at some length ; and only appears in the West Indies when brought thither from Europe by seamen labouring under it. One of the chief peculiarities of this fever is a greater degree of muscular debility than occurs in others : and this debility is constantly proportioned to the malignance of the attack. The second symptom that principally marks this disease, is a particular delirium, which shews a deprivation of sensation and reason, nearly complete when coma takes place, and attended with much apparent anguish and sufferings.

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The third symptom that distinguishes this fever, resides in the spots or petechiæ, which occur in its latter stages, and always portend considerable danger. A fourth symptom is a peculiar heat in the skin, which conveys to another person, on touching the palm of the hand, a glow that lasts for a considerable time.

To these symptoms may be added the indefinite crisis of the fever, which discovers no violent exertions towards the termination, but makes its progress towards recovery in a gradual and equable manner. This fever, when brought to the West Indies, receives various modifications, which change its form. Thus it becomes frequently converted into dysentery; at other times, it assumes the bilious appearances which mark the yellow fever; and at others it is protracted for a long period, proceeding in a slow and gradual manner, without any violent or exacerbated symptoms.

The treatment of this fever in the West Indies differs little from its treatment in the Channel. The first stage is to be obviated by clearing the stomach, as there recommended, following up this practice by mild diaphoretics, with a proportion of opium, and a plentiful supply of diluents.

When the second stage begins, these curative means must yield to medicines of an invigorating

and cordial nature; and wine, bark, and opium, become the only remedies to be trusted. With respect to the bark, it is best given accompanied with some antimonial, or neutral salt; and antimonial wine, or spiritus mindereri, or aq. ammon. acetat. are most proper. Opium requires nearly the same caution as the bark; and though a useful medicine in this fever, should never be administered without paying particular attention to the state of the bowels.

The recovery from this fever, in a warm climate, is succeeded by a long state of weakness, the best means of removing which, consist of a combination of tonic and stimulant medicines, as in the form of Huxham's tincture of bark, which, in small doses, with a moderate use of wine, will answer every purpose. Where coliquative sweats attend this debility, the elixir of vitriol may be used with advantage.

BILIOUS REMITTING FEVER.

This is the most common fever in tropical climates. It is not frequent at sea, but generally attacks the men when they get into harbour, particularly such of them as have been sent on the business of wooding and watering, and have been thus exposed to the noxious effluvia by which

which it is produced. It may be considered as the same fever of a warm climate, as the intermittent or ague is of a cold one, and arises evidently from the same cause, or from the vitiated air of woods and marshes. This fever generally attacks with lassitude, chilliness, and pains of the back and bones, as in other fevers. These symptoms are succeeded by sickness of stomach, great heat, thirst, and pain above the eyebrows. The pulse, though soft, becomes very quick and full; the countenance is flushed; and the head achs violently, with great restlessness, accompanied with vomiting of bile. The paroxysm generally terminates by sweat, and the patient enjoys a little interval of ease, by which it is distinguished from the malignant yellow fever. After this remission, the fever in a few hours returns: this is known by the aggravation of all the symptoms, which are carried off by a sweat as before, or sometimes by an evacuation of bile.

This fever, when neglected, soon acquires a continued form. It is now that the tongue, which was before only white and furred, becomes dry and black; the eyes are dull and heavy; and the teeth and lips covered with a tenacious slime. These symptoms are attended with tremors, and twitching of the tendons; and in proportion as the strength sinks, the pulse becomes very small and fluttering, and the heat of the skin is changed

into a cold clammy moisture. This fever generally proves fatal betwixt the third and seventh days; and chiefly prevails during the months of June, July, and August, beginning to abate in September. The peculiarities by which it is distinguished are the violence of its first symptoms, particularly the delirium, the shortness of its course compared with the fever already described; and the bilious vomitings and stools which always attend it.

Towards the end, where it has been violent, it frequently passes into the continued form.

The treatment of this fever requires in the commencement more attention to evacuation than the preceding one. Where the inflammatory symptoms run high, bleeding is recommended. To be successful, it should be performed on the first attack, but with judgment, and in those habits only which appear strong and athletic; for, if unseasonably employed, the recovery is long protracted. But though bleeding may be a doubtful application; the evacuation by the bowels, as early as possible, should never be dispensed with. The means of doing this are the same as already directed in the former fever by antimonials; and their purgative operation should be even increased, by other laxatives succeeding them in the course of a few hours.

The next step, after this complete evacuation

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of the bowels, is to endeavour to procure a remission by the skin; and for this purpose the antimonials are to be continued in smaller doses, joined with the saline mixture, or aq. ammon. acetat., assisted in their operation by warm diluents.

When, by these means, a remission is once brought about, the bark is to be administered in such quantities as the stomach will bear; but the moment an increase of fever takes place under its use, as may be discovered by a sense of uneasiness and weight about the hypochondria, shewing a fresh accumulation of bile, a repetition of evacuants will then be necessary; and calomel will perhaps prove the best medicine for this purpose. The antimonials may then be resumed, but with caution at this advanced stage of the disease. Anodyne diaphoretics may now be given with advantage; and though the cure will chiefly depend on the proper administration of the bark, it cannot be exhibited safely without clear marks of remission; and where these are doubtful, it should always be conjoined with some antimonial preparation or neutral salt.

If the fever does not remit after the first week, but if, on the other hand, an aggravation of the symptoms ensues, blisters, along with camphor and other cordials, are indicated. But still, whatever medicines are applied, the state of the bowels

forms the primary indication, and must always be attended to, from a fresh accumulation of bile being so prone to take place. On this account, even in the exhibition of the bark, where the remission renders it proper, it should be conjoined with rhubarb, to answer this effect.

MALIGNANT YELLOW FEVER.

The most dangerous of the West India fevers, is what has been so universally known by the name of the Yellow Fever. The attack of this fever is, for the most part, sudden, and without any previous complaint on the part of the patient. The first symptoms are sudden giddiness and loss of sight, to such a degree as to make the person fall down almost insensible, in which state he will remain for half an hour or upwards. The body is overspread with a cold sweat, soon succeeded by intense heat, with a quick, small, and hard pulse. Along with this, great headach prevails, particularly affecting the fore and hinder parts. This is accompanied by pain at the right side, and much oppression at the precordia. In this fever the eyes are much inflamed and watery, protruding and rolling in a wild manner. The face is greatly flushed; and a strong

strong determination to the head in general prevails. With these primary symptoms are connected much heat of stomach, and strong tendency to bilious vomitings. Violent pain is also felt in the small of the back and calves of the legs.

During twenty-four or thirty-six hours these symptoms increase, until at length the appearances of debility advance rapidly, and a greater or less degree of coma and delirium, very much resembling the state of intoxication, ensues. From the commencement of the attack, life is seldom protracted beyond sixty or ninety hours. Previously to its proving fatal, a short interval of reason takes place, the patient, for the moment, feels himself better, and is flattered with the prospect of recovery; but the first symptoms of the attack recurring with increased violence, death ensues. In this last stage the foam issues from the mouth; the eyes roll dreadfully; and the extremities are convulsed, being thrown out and pulled back in violent and quick alternate succession. The patient rarely survives this second fit.

Such are the ordinary appearances of yellow fever in its worst forms; and what peculiarly marks this description of fever, is the suddenness of its attack, and the rapid progress of the symptoms of debility. The redness of the face very

speedily yields to a yellow tinge; the increased action, to fainting on the slightest motion; the eyes become of a pure yellow colour, which is quickly diffused over the whole of the skin. The vomiting, at first frequent and violent, soon diminishes; and the pure bile at first evacuated, becomes tinged with blood. Hemorrhages arise from the mouth, nose, arms, anus, and urethra. Towards the close of life the blood from the anus has a black gritty sediment, and is extremely offensive. Indeed every part of the body is affected with strong marks of putrescency. Large petechiæ are discovered throughout the skin, consisting of red or livid patches. Their first appearance is either during the comatose state, or a few hours previous to death; and of all the symptoms, they are the most unequivocally fatal.

This disease is evidently the effect of a peculiar and unknown contagion; and its introduction into the West Indies has been attempted to be traced by some medical writers, from Africa, by means of the Guineamen employed in the slave trade. In such ships, it must appear, that the seeds of this contagion could not fail to be brought into action, when we consider the class of men amongst whom it first appeared, and the situation in which they were confined. The sailors were men from the age of fifteen to forty and upwards, the period of life, as formerly noticed,

noticed, most susceptible of being acted upon by the infection; and their situation particularly predisposed them to it; through their violent exercise in the sun; their immoderate use of undiluted new rum; their bathing in a state of intoxication, and often when extremely heated; their sleeping on deck during the night, &c. To these circumstances may be added some others no less favourable to its appearance, as the damp heat between decks, the excessive filth of these particular ships, and the uncleanly state of the persons and clothes of the men themselves.

In this manner it would seem that the disease first made its appearance in the West Indies, where its ravages have exceeded all the details we have of the plague and of the most destructive contagious maladies. It has been found to set at defiance all the usual means which have been experienced effectual preventatives; and nothing has been discovered to stop its progress, or check its career, but cutting off the communication between the healthy and the diseased; those only having escaped who sedulously avoided the spot where infection was known to prevail. At the same time it was remarked, that the contagious effluvia did not extend themselves beyond the distance of six or ten feet; and persons living in the same house with the sick were known to escape the disease. What may be observed also

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as peculiar to this contagion, is, that though neither age nor sex were exempted from its attack, yet some were more obnoxious to it than others, and the colour had evidently much influence in determining its violence. From the experience of several eminent practitioners, a scale of gradation has been formed with regard to the susceptibility of infection among different classes, in proportion to age and colour, in the following manner. Thus—

1. Sailors, more especially the robust and young: those least accustomed to the climate; and those most given to the drinking of new rum.

2. Soldiers, especially recruits lately from Europe; and the most intemperate.

3. White males in general lately arrived; more especially young men from Europe.

4. All other white males, more especially the lower classes; and of them the most intemperate; those debilitated by recent sickness.

5. White females, more especially those connected with the shipping; and those lately from Europe.

6. People of colour, from Mustees to Cabres.

7. Negro-men, more especially sailors and porters.

8. Negro-women, more especially house-wenches.

9. Chil-

9. Children, more especially those of colour.

From the general fatality of this disease, its treatment has employed the fullest exertion of medical abilities, to find a successful plan of cure. Different methods have therefore been recommended, and the principal of these may be reduced to three: the evacuating and antiseptic plan, the alterative plan, and the simply tonic or bracing plan.

The first of these, after evacuating in the usual manner the stomach and bowels, by the antimonial solution, consists in throwing in the bark and acids, with the addition of wine, in such quantities as the stomach will bear; and as the irritability of this viscus is here very great, an occasional opiate will be necessary; or, if this does not succeed, the bark must be exhibited in the form of clysters. Of the acids, the vegetable is to be preferred*; and all drinks given the patient should consist of a proportion of it.

In the Spanish colonies of South America, more especially at Santa Martha and Carthagena, where this disease, named there *nigro vomico* (the dusky vomit), first appeared in the year 1729, the sole remedies which are resorted to by the indigenous inhabitants, are the vegetable acids, more particularly that procured by an infusion of the raiz, a plant named by Linnæus *cactus tuna*, very common in those parts.

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During this general treatment, particular symptoms will require attention. Thus, pain and increased discharge will call for the interposition of opiates, which should be administered in small doses, in order to be retained; and costiveness, if it prevail, must be removed by acescent laxatives. During this course, a free exposure of the patient to a dry cool air is to be recommended.

Such was the treatment formerly considered as the most judicious and successful in this and all fevers showing a strong putrid tendency: but the application of this plan having been found to be in general ineffectual, recourse was had by some bold practitioners to a remedy of a different nature, on the idea that the acute inflammation soon passes into the atonic state. This was the application of mercury. The manner of administering it here which is thought preferable, is to give it in the form of calomel. Till it produce the effect of salivation it has generally little influence in checking the disease; but, in order to effect this, it is frequently necessary to increase the quantity and number of doses to an almost incredible degree. In some instances, even to the extent of four hundred grains of calomel have been administered before salivation could be produced; which indeed in most cases is difficult to produce in warm climates. The preference of calomel over any other mercurial preparations

rations in this disease, is justly given on account of the evacuation of the bowels, which generally attends its first operation, and unloads them of all that collection of putrid and bilious matter which is a concomitant in increasing the violence of the disease.

The mercurial course is begun with four or five grains at a time, repeated twice a-day, and increased in quantity and frequency according to circumstances, or as the patient can bear, the great point being to bring on salivation, or the tendency to it, as fast as possible. This practice has been found, of all others, the most successful against the attack of yellow fever, and is supported by the concurring testimony of the most respectable practitioners, in reading whose accounts of the disease, a European physician will be astonished at the quantity of the remedy employed, and the small influence its eems often to have exerted on the system. Where it is apt to run off too soon, it will be necessary here, as in other cases, to conjoin it with opium, and even a small addition of antimonials has been found useful.

The last plan enumerated for the treatment of this disease, is the simply tonic one; and this consists in the use of the cold bath, so strongly recommended by the late Dr. Currie. This practice, in order to be successful, requires much nicety in its application. It should be confined

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to the hot stage alone, or when the excess of morbid action is greatest. When employed in the commencement, in this cautious manner, together with the evacuation of the first passages, it will often cut short the paroxysm of the malady. It must be done by an instantaneous shock; but as this is with difficulty applied in most situations of the sick, cold effusion has been generally preferred. In the history of this disease, however, we have seen that it is particularly characterized by the rapid progress of the debility; on that account, this method of cure can never be so certain as the former; for unless the increased tonic action succeed the application, the patient will be more injured than benefited by this mean of cure.

In enumerating these different modes of treatment, we must not omit noticing one which is now gone into disrepute, namely, attacking the fever, on the appearance of its earliest symptoms, by large and repeated bleedings, to which some practitioners were led by the strong marks of determination to the head, and other inflammatory appearances which usher in the malady. These appearances, however, from the history already given of the disease, must appear to be highly deceitful; and we know well, that the constitution in warm climates does not bear bleeding well in any of its complaints, much less in a disease

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in which the progress to debility is so rapid. The favourers, therefore, of this practice, have confined it to within an hour of the first attack, a period so early, that a practitioner seldom sees a patient till it is past. This treatment is then followed by the use of antimonials, or saline laxatives, so as to clear the *primæ viæ* of their morbid contents.

To conclude, then, by hazarding our opinion of the best treatment of yellow fever, we are inclined to favour the mercurial practice, as having effected a greater number of cures by the most decided evidence than any of the other plans enumerated.

DYSENTERY.

Next to yellow fever, one of the most prevalent diseases in the West Indies is Dysentery. If this be not the most fatal, it is certainly, of all the diseases which infest a ship's company, the one most disagreeable. The constant doleful complaints occasioned by the violent gripes; the tenesmus, and other pains; the noxious fetor continually about the patients themselves, and likewise arising from the necessary buckets; together with the extremely disagreeable appearance which such objects present, in spite of all the means that can be used to prevent it, are evils

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peculiar to this malady. These are also very much increased when the weather is so bad as not to admit the lower deck ports to be opened in large ships, or, as sometimes must be the case, the hatchways in small ships to be unlayed; seeing that, from the want of ventilation, the tainted atmosphere not only surrounds the sick, but, though every precaution is taken, the noxious effluvia are too frequently conveyed to the people in health. This tainted atmosphere, it may be farther observed, is perhaps a more powerful cause in enfeebling seamen, and depressing their spirits, during a course of bad weather, than all the inclemency of it to which they are exposed while on their watch on deck. It is indeed highly pleasing to observe the immediate alteration which appears in the countenances of the seamen, when the ship is well washed and aired, and they have cleaned themselves after bad weather: from being quite sallow and dejected, they acquire a healthy look, and fresh spirits. This cause of confinement below, cannot fail also to retard the recovery of dysenteric patients, when they would otherwise be enabled to get on deck. As the infection of this disease is so ready to be communicated, they should, though far advanced in the convalescent state, be prevented from going to ease themselves in the head, where the common seats are fixed; and one side of the head

head should be rather allotted for their use, and the other side kept clear for the healthy part of the crew, under the pain of being punished on transgressing this regulation. The symptoms and history of dysentery we have already considered fully, when treating of it as a disease occurring in the Channel Service; and we are chiefly to regard it here as requiring to be somewhat modified in its management, on account of its different appearance in a warm climate.

In the West India dysentery, the sickness at stomach, gripes, pain in the different parts, and contortion of the bowels, though not more violent than when they occur in the former situation, are generally attended with a greater prostration of strength, and depression of spirits. In some cases, also, the discharges of blood are so very great, as to prove fatal in the course of the third day; and here, from the first, the prostration of strength has been found to be very considerable, attended with a wildness of countenance, and the utmost despondency. The treatment of this dysentery proceeds on the general principles already detailed; but it is to be observed, that, though the symptoms of inflammation run pretty high, bleeding is hardly admissible in its attacks among sailors in a warm climate. The first object to be attended to in the management of this disease, particularly where there prevails much

bad taste, nausea, and inclination to vomit, is to clear the stomach of its contents, and to make the medicine pass downwards at the same time. For this purpose, twelve or fifteen grains of ipecacuanha, with a grain and an half of tartarized antimony, divided into three doses, given each at the distance of three hours, will be found generally to answer the intention. If, however, it should not pass off by the bowels, a saline purge may be then taken. When these medicines have once operated, an opiate is to be administered, with a small addition of an antimonial: and the patient should be confined to bed, and strictly enjoined to drink plentifully of some grateful diluent. There are practitioners who prefer the ipecacuanha alone, given in divided doses; but whatever the evacuating medicine is, the occasional opiate must not be omitted after its operation; and this plan of purging, succeeded by the opiate, is to be regularly continued every six or eight hours. The disease will be found very soon to yield to the use of these remedies. Instead of this practice, mercury has been strongly recommended by some practitioners, on the same principle as when it is administered in the yellow fever. The preparation here also is calomel; and from the symptoms of tonic inflammation being of so short a continuance, there is little doubt but that it will be given with considerable success. The same

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precautions will be here necessary as in the former practice, to conjoin the mercurial occasionally with opiates, in order to counteract the violence and urgency of pain. When the disease passes into a chronic state, which it often does when of long duration, it is then supported more from habit than from other causes; and accordingly the use of opium, as suspending this habit, is the best remedy to be had recourse to. In this state, also, warm flannel clothing is particularly necessary; and much advantage will result from exercise, as far as the strength will permit, in order to promote the determination to the surface.

Of other remedies in this disease, it is only necessary to observe, that astringents are in general hurtful, even though their effect should be purgative in their first operation, as is the case with rhubarb, and some others. The same objection holds against the bark, though it may be occasionally useful in the convalescent state.

DRY BELLY-ACH.

This disease, which may be very properly placed after the former, is not solely confined to the climate of the West Indies, but appears there more frequently than elsewhere as an idiopathic

disease. In our own climate it arises from a peculiar cause only, namely, the poison of lead, when it is termed the Devonshire eholic. This complaint is always attended with excruciating pain; and is seldom sudden in its attaek. On the other hand, it steals on by degrees, beginning with a sense of weight and uneasiness in the belly, particularly about the navel, and which rises in a short time to a slight pain, not constant, but always increased after eating; until at length the most violent and constant uneasiness ensues, not only in the seat of the disease, but also in the arms and back. These sufferings finally terminate in palsy.

The usual symptoms of the cholie, whieh it resembles, are augmented in an extreme degree. The navel is drawn in towards the back; the lumpy feeling of the intestines acquires a stony tension and hardness; and their whole course, from the pylorus to the anus, exhibits symptoms of violent spasms, to sueh a degree that, from the eontraction of the sphincter, a clyster can hardly be admitted. The vomiting here is generally of a greenish or blaek matter; and the same discharge takes plaee by stool, possessing an highly acrimonious quality. In time, the passage of some hardened scybalæ occasionally takes place. In the advanced stage of the disease

ease violent nervous symptoms come on, as blindness, loss of voice, and at times apoplexy and palsy.

The production of this disease has been referred to the poison of the lead contained in the rum; but, though this may at times be the case, it cannot on all occasions account for its occurrence. It has therefore been properly referred also to suppressed perspiration from cold, after being in a heated or fatigued state, especially when there prevails a redundance of bile, and when constipation appears in the first passages. This disease, if neglected at first, is often very obstinate, and attended with very serious consequences; insomuch that the patient, after suffering days and weeks of torment, without relief, at length loses all the power of his arms and hands, and sometimes also of his legs.

In the cure of this malady the first object is to relieve the pain of the bowels, and bring on a relaxation of the spasm. This is to be chiefly done by the use of opium, joined with carminatives, as the essence of mint and peppermint. Mild cathartics are then to be exhibited, as castor oil; or those of the saline kind, as bitter cathartic salt, and cream of tartar. Small doses of tartar emetic may be afterwards administered, interposing the use of opiates according to the state of pain, and applying to the abdomen the various external means for relaxing spasm, as warm cata-

plasms, fomentations, blistering, &c. The slower the cure proceeds, the more successful it turns out. When the patient is recovered, the greatest caution should be used by him to avoid whatever has a tendency to renew the attack, especially acids in diet, and flatulent food. He ought occasionally to employ mild laxatives, and should guard against the effects of cold, since not any disease, after a first attack, is more liable to return. In its advanced stages, vitriolic preparations, and alum, have been much recommended; but they are never useful till after the bowels have been freely opened.

The palsy of the limbs which succeeds this malady, may be considered as a reproach to the healing art. By the powers of their constitution, young people in time recover from it; but with those of a more advanced age, the imperfection continues for life. The remedies had recourse to, are chiefly the warm-bath and the use of tonics; friction and exercise are also powerful assistants.

TETANIC COMPLAINTS.

Of all the diseases to which man is liable, the attack of none is perhaps more horrible than this, at the same time that it generally arises from the slightest

slightest causes, as a trifling wound, or puncture in a tendinous part. It is equally frequent from cold or moisture, particularly where sudden vicissitudes of weather prevail; and in these cases it is also equally unexpected in its attack. Though every part of the body is liable to be affected with the violent and spasmodic state which this disease produces, yet its most frequent form is that of lock-jaw; and in this form its attack rises gradually to a violent degree.

Its first symptom is a mere stiffness, which increases by degrees to pain, and renders the affected parts entirely immoveable. This stiffness begins in the back of the neck, extends hence to the root of the tongue, and, after affecting the parts necessary to deglutition, shoots into the sternum, and at last seizes the back. Spasms then arise in the stiffened parts, occasioning pains of so excruciating a nature, that death is often wished for, even by the attendants. A remission of these spasms occasionally takes place every ten or fifteen minutes; but they are renewed with aggravated torture on the slightest causes, being re-produced by the least motion of the patient, or even by the touch of an attendant. By these spasms the teeth become entirely closed, so that nothing can be introduced into the mouth; and in the end, every voluntary muscle of the body assumes this state, occasioning the

most hideous deformity of appearance. This disease is not attended by any permanent fever; but during the violence of the spasm some temporary symptoms of it prevail. Though every habit of body is liable to its attacks, the robust and strong are its particular victims; and the most frequent period of its occurrence is when the rainy season sets in after excessive heat.

The treatment of lock-jaw has been conducted on various principles; but consists chiefly in the use of the most powerful antispasmodics, which must be here carried to the utmost excess. Where the causes are sudden and occasional, opium and the warm-bath will restore the suppressed perspiration, and relax the spasm; but their operation is not so certain where the disease is the effect of local injury. The doses of opium should be here moderate at first, and gradually increased till they come to a considerable quantity, not less than four or five grains; or in laudanum, to one hundred drops. The warm-bath * should

* Where the warm-bath is necessary, it is not always convenient to have the proper apparatus. The late Dr. Turnbull, in situations of this kind, recommended the following method to be had recourse to, as a substitute.

Immerge a large blanket in boiling water; afterwards let it be wrung dry, and apply it over the whole body; and, with additional covering to the bed, let the patient remain so enveloped for twelve hours. He also recommended the addition of vinegar to the water.

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not be less than an hundred degrees; should be repeated at least twice a-day, and long continued. The vapour-bath would perhaps be preferrable to any other. The antispasmodics are here of little efficacy. Next to the use of opiates, another practice recommended in tetanic complaints, is the application of cold water, either by bathing, dashing, or pumping on the patient. This is a remedy of very doubtful operation; and much will depend on the manner in which it is employed. Another practice is that of mercurial frictions, rubbed in in considerable quantities, so as hastily to induce salivation. The success of this remedy will depend entirely on the inflammatory dyathesis, which is excited to counteract the spasmodic state.

The last practice consists in the administration of tonics, particularly bark and wine, and proceeds on the idea of the disease being founded in debility.

Each of these modes of treatment has succeeded at times, and each of them has also failed in its turn.

FISH POISON.

An accident to which seamen are occasionally liable in the West Indies, and which consitutes an alarming

alarming disease, is what is termed the Fish Poison.

This noxious quality is attached to certain species of fish, which are well known to the inhabitants, and of course avoided by them. The poison is of a highly sedative nature, and most probably arises from the fish feeding on sub-marine narcotic plants. Even lobsters and crabs are found to be equally dangerous when they eat of the manchineal apple.

The symptoms of fish poison are, on their first appearance, extreme sickness at stomach, with violent gripings. To this succeed cold sweats, and cutaneous eruptions. There sometimes prevail violent *cholera morbus*, which is followed by a degree of palsy. Where the poison does not prove fatal, the patient is long in recovering. This poison is supposed to reside chiefly in the liver, entrails, and skin of the fish, by the curing or salting of which it is entirely destroyed. It has happened, indeed, that some persons who have eaten of the same poisonous fish have escaped its effects, while others have lost their lives; and it has been remarked, that those who drank most freely suffered the least injury. The consequences, accordingly, of fish poison, have been often obviated by taking freely of brandy, or of any other ardent spirit: but where the symptoms of the poisonous action have already commenced,

menced, it will be proper, in the first place, to empty the contents of the stomach by an emetic of white vitriol, or blue vitriol with tartar emetic, and to drink plentifully of warm water. That being done, recourse is afterwards to be had to the strongest cordials, particularly aromatics, as ginger tea, and brandy, with laudanum, Cayenne pepper made into pills, &c. After the immediate effects of the poison are thus removed, tonics, as the bark and bitters, will be proper, in order to restore the lost vigour of the bowels. But still, the effects of this poison, in spite of every treatment that has been suggested, often remain in a certain degree, and inconvenience the patient for life.

VENEREAL DISEASE.

The venereal disease is frequently caught by sailors in the West Indies, to which quarter its origin has been traced; but being here milder than in a northern climate, it is more liable, both to be concealed by the patient, and also mistaken by the practitioner. The symptoms are here often very slight or equivocal; and they often also come on without any previous local complaint. Hence the disease is not suspected, till it has made considerable advances. Ulcers of the throat

throat likewise, which form so distinguishing a feature of the disease in Europe, are less common in the West Indies; and the poison seems to have a particular tendency to affect the bones, which it does under the semblance of rheumatism. From these circumstances, though the cure of lues is easier in a warm climate, it is seldomer obtained than in Europe. In every rheumatic case, therefore, that presents itself in the West Indies, a Naval Surgeon should be always suspicious of this cause, and frame his conduct accordingly.

YAWS *.

A malady more dangerous than the venereal disease in the West Indies, and to which seamen are too often exposed in their intercourse in that

* There is a species of this African endemic very prevalent in the western parts of Scotland, distinguished by the inhabitants under the name of *sibbins*. It is also particularly to be observed, that the same mode of treatment which is remarked to be of service in the *yaws*, is pursued with great success in this disease. Dr. Gilchrist, a celebrated practitioner in that part of Scotland, in speaking of it, observes, that the spreading of the *sibbins* is principally owing to the neglect of cleanliness, and seems to think, that by due attention to that virtue, it might ultimately be extirpated. Vide *Turnbull's Inquiry into the Origin and Antiquity of the Lues Venerea.*

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quarter, is the yaws. This disease, which is endemial to Africa, is more liable to affect the habit of the black than of the white; and when it is received by the latter, it is in general of a milder nature. Like the small-pox, it attacks only once in life; and seldom makes its appearance without some previous indisposition. Thus the person assailed by it feels pains in his bones, and becomes languid and listless. His skin, which is generally dry, changes its colour, and has various discolorations for some time previously to the eruption of the pustules. These appear like little spots on the cuticle, level and smooth with the skin, at first no larger than the point of a pin, but increasing daily, and becoming protuberant like pimples. On the skin being abraded, there is found beneath them, instead of matter, a white slough, which separates, and discovers, growing from the cutis, a red substance, various in its size, but always preserving in its form the appearance of a raspberry. Though the skin in general is the seat of yaws, yet certain parts of it are oftener affected than others, particularly the groin, genitals, arm-pits, and face, where these pustules always appear largest. It should be noticed, that their number is constantly proportioned to their size, they being fewest where large, and in the greatest number where small. The eruption is sometimes, though not always, attended

attended with fever. This disease is considered as having infallibly to run a certain course, whatever methods of cure may be employed; but the general treatment consists in supporting the strength of the constitution, and assisting the discharge of the morbid matter by the skin. The first intention is to be accomplished by a mild nourishing diet, and gentle exercise, in conjunction with which the bark has been lately introduced. The second part of the treatment consists in the daily use of the warm-bath, than which nothing assists the cure so effectually. On the same principle, warm clothing, a warm atmosphere, and cleanliness, are equally indispensable.

Such is the treatment which will be found successful in the greater number of cases; but where some of the consequences of the disease remain obstinate, these ulcerations have been attacked by an alterative course of mercury, with a decoction of the woods. With this general treatment topical applications are blended, and the sores are treated with mild escharotics, in the same manner as the common fungus ulcer.

Where inoculation of the small-pox has been attempted in the case of a negro under the influence of yaws, the consequences of this last disease have generally disappeared after the eruption.

SCURVY.

Scurvy is a disease which is less afflicting to the patient on the West India Station, on this account, that here an abundant supply of the citric acid in its fresh state, a certain mean of cure, is to be obtained. When this disease appears here, it is often combined with dysentery, and requires particular attention in counteracting this symptom, as well as in attending to the general state of habit.

Such are the most prevalent diseases which attack a squadron on the West India Station. Into the catalogue of them we have introduced some which are only occasionally met with, in order to allow the practitioner to judge properly on every part of this subject; and we here take the liberty to insert, first the table of Dr. Robertson, Physician to Greenwich Hospital, for three years in that quarter; and next, the later one of Dr. Blane for a certain period.

Table

Table of Tropical Diseases, by Dr. Robertson, Physician to Greenwich Hospital, as they occurred in three voyages, in order to point out the comparative frequency of the different maladies.

No. of patients of each disease.	
62	Remitting fevers, a number of them mild, especially those which happened the two last voyages.
11	Intermitting fevers, including the relapsed remitting fevers.
1	Slow nervous fever.
11	Catarrhous fevers.
169	Slight fevers, including colds, head-achs, nausea, and suppressed perspiration in a warm climate.
36	Slight fevers, including colds, head-achs, and indispositions in a cold climate.
96	Dysentery; many of them were mild, and relapses.
28	Diarrhœa.
17	Belly-achs.
16	Coughs.
29	Rheumatism, including lumbago and muscular pain.
30	Scurvy, including the scorbutic ulcers.
506	Total.

In the above table of Dr. Robertson, which includes the diseases only proper to the West Indies, and not the occasional ones that are met with in every situation, it will be seen that the great proportion of sickness is from fevers, there being, out of 505 patients, no less than 290 labouring under various forms of this malady. Dysenteries or fluxes are the next in proportion, amounting to 141, and the remaining proportion consists chiefly of scorbutic patients.

Table,

Table, shewing the prevalence of Sickness and Mortality in the Old Squadron, in January 1783.

Diseases.	Proportion of those taken ill in the course of the month.	Proportion of deaths in relation to the numbers of the sick.
Fevers	One in 67	One in 70
Fluxes	One in 157	One in 0
Scurvy	One in 44	One in 0
Ulcers	One in 0	One in 0
Other complaints	One in 48	One in 117
General proportion	$12\frac{1}{7}$	214

Table, shewing the prevalence of Sickness and Mortality in the New Squadron, in January 1783.

Diseases.	Proportion of those taken ill in the course of the month.	Proportion of deaths in relation to the numbers of the sick.
Fevers	One in 12	One in 48
Fluxes	One in 29	One in 153
Scurvy	One in 320	One in 0
Ulcers	One in 137	One in 0
Other complaints	One in 19	One in 0
General Proportion	$5\frac{1}{7}$	109

Table, shewing the prevalence of Sickness and Mortality in the Old Squadron, in February.

Diseases.	Proportion of those taken ill in the course of the month.	Proportion of deaths in relation to the numbers of the sick.
Fevers	One in 46	One in 69
Fluxes	One in 159	One in 0
Scurvy	One in 63	One in 0
Ulcers	One in 100	One in 0
Other complaints	One in 51	One in 136
General proportion	$13\frac{1}{7}$	178

Table, shewing the prevalenoe of Sickness and Mortality in the New Squadron, in February.

Diseases.	Proportion of those taken ill in the course of the month.	Proportion of deaths in relation to the numbers of the sick.
Fevers	One in 30	One in 50
Fluxes	One in 34	One in 0
Scurvy	One in 212	One in 0
Ulcers	One in 174	One in 0
Other complaints	One in 52	One in 0
General Proportion...	11	185

Table, shewing the prevalence of Sickness and Mortality in the Old Squadron, in March.

Diseases.	Proportion of those taken ill in the course of the month.	Proportion of deaths in relation to the numbers of the sick.
Fevers	One in 28	One in 12½
Fluxes	One in 71	One in 0
Scurvy	One in 46	One in 0
Ulcers	One in 226	One in 0
Other complaints	One in 76	One in 44
General Proportion...	11	194

Table, shewing the prevalence of Sickness and Mortality in the New Squadron, in March.

Diseases.	Proportion of those taken ill in the course of the month.	Proportion of deaths in relation to the numbers of the sick.
Fevers	One in 44	One in 0
Fluxes	One in 49	One in 0
Scurvy	One in 123	One in 0
Ulcers	One in 183	One in 0
Other complaints	One in 38	One in 138
General Proportion...	12	403

The

The preceding accurate tables of Dr. Blane, both shew the proportion of diseases to each other on the West India Station, and point out also the the proportion of mortality from the same cause.

DISEASES

OF THE

EAST INDIA STATION.

Introduction—Diseases most prevalent on the East India Station.

Dysentery—Causes of it on the voyage—on landing.—Consideration of it as connected with the affection of the liver—Practice on this principle; by purgatives and mild diet; by mercury—Preference of calomel—Reasons for this preference.

Hepatic Complaints—Their successful treatment first known in the East Indies—History and symptoms of hepatic complaints—Treatment by purging; by common laxatives; by calomel—Arguments in its favour.—Most frequent appearance of these affections at Madras.

Fevers—East India fevers, differing little from those of the West India Station—More acute symptoms of inflammation at the commencement of the treatment—Preference of evacuations by mercurials.—Cautions respecting bleeding.

Scurvy—Greater tendency to appear in East India than in other voyages—Causes of this.—Remark on the treatment.

Venereal Disease—Caution on the treatment of it on an East India voyage.

AFTER the Channel and West India Services, the most important department of the marine is the

the East India Station. The extent of territory possessed in that quarter; the immense commercial intercourse to which that territory gives rise; and the great distance from the mother country, which renders the voyage long and precarious; are considerations why a more than common attention should be paid to the health of the men employed in that particular department. From the length of the voyage, and the different climates which are necessarily encountered, seamen are more exposed to disease than in the preceding station, where the attacks take place more frequently on the arrival at land, than in the progress to it.

The most frequent diseases of this station are dysentery and liver complaints, the fevers occurring rather on the making of land than in the course of the voyage. We shall therefore begin with dysentery, as the most predominant malady.

DYSENTERY.

This disease is very frequently brought on in a voyage to the East Indies in the Company's service, by the improper use of animal food, and by not lowering the system in the necessary pro-

portion. Hence *cholera* is frequently induced as a forerunner of this complaint. The patient, going to sleep with his stomach loaded with this description of food, is soon awaked with sickness of stomach. He vomits, and the continuance of this vomiting is soon followed by gripes, and frequent stools. Spasms of the muscles of the abdomen ensue, accompanied with the same affection of the extremities, soon forming a complete case of *cholera morbus*. It has been ascertained to be of the highest importance, that the men labouring under this affection, as well as after other diseases, should not return to their labour till their strength is pretty well recruited; otherwise, relapses generally take place, and the disease becomes more unmanageable and dangerous than at first.

Where this disease does not occur during the voyage, an attack very frequently succeeds on reaching India, particularly the settlements of Madras or Calcutta. Many circumstances contribute to favour this attack, particularly if the arrival takes place at the unhealthy part of the year, or in the season of the periodical rains, or at their termination; and the foundation of the disease, laid by this state of weather, is increased by the conduct of the crew themselves. After a voyage of such considerable length from Europe, during which, although positive indisposition may not have been very common, a tendency to scurvy,

scurvy, and other diseases, must unavoidably prevail; the elevation of the spirits, on first landing, and the emancipation from every restraint of diet, lead the people into every possible excess in the gratification of all their appetites. Of these, the indulgence in strong liquors may be considered as the most pernicious practice; at the same time that it is impossible to restrain those who are permitted to land at Calcutta, or any of the other settlements, from an early access to them. These spirits are in general of the worst and most inflammatory kind; and as a proof that much depends on this indiscreet conduct of the crew, it is remarked, that the higher orders of Europeans experience, in a great measure, an immunity from the attack of such complaints. The symptoms of East India dysentery differ in no respect from those described on the former station; but the practitioners in this climate consider dysentery, and all other violent intestinal discharges, as connected more or less with the diseased state of the liver*. On this supposition their practice has entirely proceeded,

* The late Dr. Gilbert Pasley, Surgeon-General to the Madras establishment, was one of the most intelligent and successful practitioners in the treatment of the diseases of India. He was decidedly of opinion, that the fluxes so prevalent there, originate in obstructions of the liver and mesentery, more especially in the former; and that they are in themselves merely symptomatic, and the effect of diseased secretions.

and with a success to which European practitioners are utter strangers. In this climate, where a regular and uniform heat constantly prevails, there is little doubt but that an accumulation in the liver will be at all times a prevalent symptom, and that this accumulation will be constantly ready, both to affect the system at large, by the production of irritation, and still more directly to act upon those parts particularly fitted to receive the bilious discharge. On these grounds, the use of mercury has been the great and favourite remedy, accompanied with occasional purgatives, administered in such a way, as that a full evacuation should be kept up till every appearance of the original cause of obstruction should be fully removed. Though we had occasion to notice this practice in treating the dysentery of the former station, yet we confined its success more especially to the advanced stages of the disease, or when it had passed into the chronic state. But here the practice is considered as equally adapted to the malady in its most acute stage; and, when early resorted to, is regarded as the only mean of checking its progress, and preventing any disagreeable consequences which might ensue. Hence intestinal evacuations are insisted on as the only certain plan of cure for every dysenteric symptom: and they must be applied with a boldness suited to the apparent urgency

urgency of the disorder, without regard to the temporary weakness which may result from their operation.

HEPATIC COMPLAINTS.

It is from the East Indies alone that practitioners have derived satisfactory accounts of the successful treatment of liver complaints; and this treatment was long known there before it was adopted in Europe. Hepatic affections are accompanied with a great variety of symptoms; and, in the same manner as nervous disorders are in the mouth of every one in our climate, so diseases of the liver are with equal frequency, and not unreasonably, the theme of every East Indian invalid: the term is even extended to all the complaints that occur here. It is perfectly clear, that whenever this viscus is morbidly affected, the secretions of the other bowels will become deranged in a similar manner, and on this account, in all chronic complaints in India, we have much reason to suspect, that the primary disorder is influenced by a fault in the hepatic region. The symptoms which particularly mark a liver disease are, pain of the right side, sometimes pungent, sometimes acute, extending upwards towards the shoulder, and occasioning tension of the right hypochondrium, with considerable fever, and difficulty of laying

on

on the left side. With these symptoms are joined a strong hard pulse, dry cough, high coloured urine, and often vomiting of a bilious matter. But the symptoms of this affection are frequently more obscure, and are confined rather to the common marks of stomach complaints, as flatulence, fulness, and frequent eructations of this organ. The appetite falls off, and an obscure fever prevails, with a slight evening exacerbation, inducing languor, want of sleep, and much oppression. Occasional uneasiness in the seat of the liver is experienced. In the progress of the malady, the countenance appears livid and sunk; and the eye corresponds with this state, and displays a dull white, or yellowish hue. Under these symptoms the body becomes gradually emaciated, the region of the liver has a sense of fulness, and a slight swelling may be traced. By this fulness, the breathing is affected; and this symptom, which is attended with a hoarse dry cough, is particularly aggravated when the patient lies on the left side. In the end, dropsical symptoms, accompanied with jaundice, supervene; and under those complicated sufferings the patient is cut off. Sometimes an abscess opening externally, if it does not cure, at least prolongs the life of the sufferer.

It is in the second stage of the malady, and when the symptoms are rather obscure, and chiefly

chiefly referable to the stomach, that mistakes of this complaint are apt to occur; and this is the more to be regretted, as no disease yields to remedies so readily in the beginning, as the liver disease of the East Indies. Where it is incipient, and the appearances regularly and strongly marked, regimen, along with a full evacuation of the bowels, will complete the cure. This evacuation may be made with gentle saline medicines, and afterwards with more active purgatives, till every symptom be removed. When obviated, a mild vegetable diet, and the constant use of water for drink, will be the best means to prevent a recurrence, which must be guarded against by the occasional use of laxatives, and also by the seasonable intervention of an emetic. If, however, the disease has past this first stage, and does not appear to yield readily to this simple plan, then mercurials are demanded; and friction has been considered as the best mode of employing them here. But as the discharge by the intestines appears at all times to facilitate the cure, calomel will, in this stage of the disease, be the preferable remedy. Practitioners have unfortunately proceeded on the idea, that a mercurial course, conducted in the same manner as for the venereal disease, was all that was necessary to remove the obstruction, and ensure the cure. But as it is evident, on the contrary, that the discharge by

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the bowels, joined with the general action of the mercurial remedy on the system, forms the most successful mean of cure, so no other preparation will be found to be equal to the calomel; nor should its action even be lessened by its combination with opium. The secretions of the liver and of the bowels connected with it, are alone concerned, in a primary manner, in the treatment; and consequently, as the calomel excites their action by a powerful and continued operation, it supplies the most effectual remedy.

In the East Indies, as well as in the preceding station, the extent to which mercurials may be carried, before the system becomes affected, is surprising; at the same time that their influence on the salivary glands is here of less importance than in the venereal disease, insomuch that though matter should form in the liver, the same treatment is equally applicable as in the first stages of the malady; no alteration ought to be made, unless when the matter of this abscess points, and can be opened by a lancet.

The most acute forms of liver disease generally appear at Madras, and less frequently at Bengal. Under the above course, a vegetable diet, consisting of the farinacea, should be strictly adhered to, and the beverage should exclude all spirituous and fermented liquors.

FEVERS.

The fevers of the East Indies differ so little from those of the former station, that it will be unnecessary here to enter upon them again at large. The same fondness for mercurial practice prevails here as in the diseases precedently detailed; and as both the remittent and intermittent fevers of the East Indies, when they appear, discover more or less a faulty state of the liver as a secondary symptom, the propriety of this practice is strongly evinced. Indeed, what constitutes the sole difference between the East India and West India fevers, is this, that the former are accompanied, at the onset, with more apparent acute symptoms of inflammation, and, on that account, it was customary, before the introduction of mercury, to premise the cure by more copious evacuations. If bleeding is ever to be ventured on, it should be on the very first symptoms of the attack, and should not be deferred beyond this early period. In the farther progress of the disease it is always a precarious, if not a dangerous expedient, and will be more properly supplied by an attention to the evacuation of the bowels, which forms a primary indication in all the diseases of warm climates.

SCURVY.

This disease is more apt to appear on an East India voyage, on account of its long duration, than on any other; and is particularly favoured in East India ships, by the pernicious practice of the daily allowance of liquor granted to the men. Thus, by an unhappy influence of custom, the sailors view their drams as almost the only object in existence worthy their care. They eat their drams, they drink their drams, and such is their attachment to this object of their affection, that they will remain many days dangerously ill, rather than be deprived of this liquor, by having their names enrolled on the sick-list. If this practice, therefore, is not to be abolished, the liquor, in order to prevent its bad effects, should always be given in the form of punch, that the acid may correct its manifest tendency to produce scurvy.

Another cause of the production of this disease in India ships, is the indolence of the crew. This inactivity is not allowed to take place in the Navy, unless in voyages to the East Indies, during the prevalence of trade winds. As on all similar occasions a ship's crew is apt to indulge in the enervating habit of laziness, it ought to be the object of the commander, on account of its tendency to produce this complaint, to engage the

the men in such exercise and sports as may prove conducive to the general preservation of health.

In the cure of scurvy here, nothing particular occurs to be detailed more than belongs to the general plan of treatment already so often mentioned. It will be for the medical officer of the ship to lay in the proper store of preservatives, and to apply them in such manner as his judgement shall direct.

VENEREAL DISEASE.

The venereal disease we briefly mention in this place, to notice that the treatment will require to be conducted with particular caution, from the disposition to scurvy which the long voyage will necessarily produce. At the same time, it has been observed by a practitioner, that he found his scorbutic patients to bear the remedy as well as any other. During the cure, however, it will be necessary to pay more attention to the regulation of the diet, and to the use of tonic and antiseptic medicines, than with other patients not affected with this vitiated state of the fluids.

DISEASES

OF THE

MEDITERRANEAN STATION.

Introduction—Diseases on entering the Mediterranean—Fevers—Inflammatory affections of the Chest—Causes.

Egypt—Peculiar epidemics of that country.

Plague—History and symptoms of the disease—Its peculiar diagnostic—General treatment—Prevention.

Ophthalmia—History and symptoms of the disease—Its causes—Its contagious nature—Treatment of its first stage—Of second ditto.—Mode of prevention.

Fevers—General remarks on.

Hepatitis.

Dysentery—Peculiarity of Egyptian dysentery—Mode of treatment.

Extract from Mr. M'Gregor's tables of the mortality of Egypt.

The preceding detail of diseases includes all those which appear epidemic at sea, or otherwise, in the temperate and tropical climates. We are now to enter upon a new field, the diseases of which may be considered, in one part of the station, as of an intermediate nature; and in the other, as being, generally considered, similar to the tropical diseases we have already described, with the exception of a few that are peculiar to these regions, and arise from local causes.

This

This part of the station includes the diseases of Egypt, and those of the Coast of Africa. On entering the Mediterranean, fevers and inflammatory affections of the chest, and, occasionally, dysentery, form the leading diseases. The fevers are not so rapid in their progress as those of the tropical station, and resemble more the summer fevers of the Channel Service. Their treatment does not differ, therefore, from what has been directed on that station.

Inflammatory affections of the chest arise from the quick transition from the British climate to this quarter, without any attention being paid to those precautions of lowering the habit, and to the means formerly detailed, which are generally regarded on a longer voyage. The same observation applies to dysentery; and it may further be observed, that it is often induced and brought on by the wine which the sailors have an opportunity of drinking on shore, and indulging in, as generally happens, to excess.

Such are all the observations it will be necessary to make, till we enter upon the principal division of this station, or the Coast of Egypt.

EGYPT.

This country, the cradle of the sciences, has ever proved the fruitful source of diseases, two of which, the peculiar epidemics of the country, have been particularly fatal to the European constitution, whether merely touching the coast or residing in the country; these are, the plague and ophthalmia.

PLAGUE.

While the typhus is distinguished by its fatality in Europe, the yellow fever in the West Indies and America, and the hepatitis in the East, the plague is equally mortal in Egypt and the adjoining countries, from which it is often transmitted to Europe. Of this disease we have perhaps earlier accounts in history than of any other; and its fatality is generally increased by the gross ignorance of the inhabitants of the countries in which it appears.

In no country are the inhabitants afflicted with more dreadful disorders than in Egypt; and although

though many of them are to be attributed to the vices of the people, still the most fatal unhappily proceed from causes which civilization and art cannot altogether controul. Soniñi, notwithstanding his opinions are proved to have been in some instances erroneous, has entered into a very interesting detail of them, and his work is on every account worthy perusal. A few errors of description ought not to prejudice the general character of his history, as the circumstances under which he wrote, and the great object with which he wished to inflame the spirit of his countrymen, must ever be kept in view, and excuse a partiality excited by patriotism. The plague, as being the malady which occasions the greatest alarm amongst those who have never been immediately acquainted with its nature, is on that account deemed the most fatal of all distempers. This fever, now properly called epidemical, was long supposed to have been brought from Turkey, in the ships charged with old clothes, which constantly came to Alexandria for a market; but these and similar suppositions cannot any longer be maintained, since the plague has been generated annually in Egypt during the last four years, although no such communication has been possible, and even commenced in the greater number of instances in Upper Egypt. The source of this disorder must therefore be sought in those

phenomena with which its appearance is connected. The plague commences in Egypt when the Nile begins to fall, and ceases to be fatal (almost to a day, many assert precisely so) after the 17th of June, which is the period of the summer solstice, and when the Nile is supposed to receive the first increase. In proportion as the waters of the Nile retire from the surface of the country they had inundated, a rich slime, of considerable density, remains, which forms a soil so productive, as to render Egypt the most fertile land in the known world. But unfortunately, the benefits of Nature are always charged with a proportion of evil. The slime, subjected to the universal laws, is no sooner separated from its principles of action than corruption ensues, and continues until all the putrid juices are totally absorbed by the heat of the sun, which then leaves the ground perfectly brittle, and overspread with fissures. The atmosphere at this time ceasing to be tainted, the plague throughout Egypt disappears. This theory, however rational with respect to Egypt, cannot be immediately applied to other countries where the plague annually rages; but an examination into their climate, soil, and the customs of the people, will certainly prove that the plague is local, occasioned by a corrupted state of the atmosphere, and never introduced by contagion.

Since

Since the French expedition to Egypt, great discoveries have been made as to the properties of the plague, by the ability and boldness with which the numerous cases have been treated. Assalini, in his excellent work, amongst many other remarkable assertions founded on observation, denies the existence of contagion in the plague, and asserts, that he had occasion to notice in the French army, that if an infected battalion left its cantonment for another, the distemper not only ceased in the corps, but that no one, having communication, was exposed to the smallest danger: nor did the phenomena terminate here; for even if the battalion which occupied the post left by the diseased battalion, quitted the place in ten days, the slightest symptom of the disorder never appeared amongst the soldiery. As a proof of the plague being confined to the atmosphere of the spot where it rages, independently of the example which its particular locality in Egypt affords, he mentions several remarkable cases, at Jaffa, of men who, being confined in the hospital of that town by the plague, escaped into the Desert, and endeavoured to reach the army; but finding the attempt impracticable, returned again in three days perfectly recovered. This extraordinary recovery induced Assalini to encourage a removal from Jaffa, whenever the first symptoms were discernible; and every one on whom he could pre-

vail to adopt this advice, became convaleseent. Unfortunately, simple as the remedy is, death was more frequently preferred by the wretched patients, whom stupor and lethargy generally seized.

Sueh is the opinion of the Freneh writers, as dwelt upon by Sir Robert Wilson ; but the facts evincing the contagious nature of the plague, greatly overbalance the imperfect observations of these philosophers. Indeed, so satisfied are the natives of its possessing a eontagious quality, from an experience immemorially transmitted, that none of the Greek doctors, or natives, could be brought to attend the pest-houses for any consideration, or any emolument tendered to them. Besides this, the case of Dr. White, who, by the mere inoculation of the disease upon himself, fell a victim to his temerity, is too important to be passed over.

Viewing the plague, then, as a fever highly contagious, and possessing a strong putrid tendency, we shall proceed to state the history and progress of its symptoms. This disease is early marked by violent affection of the head, particularly stupor and giddiness. The pulse is weak and irregular, attended with much anxiety, frequent palpitation, and even fainting. Bilious vomitings take plaee in a high degree ; and in the progress of the disease, buboes, or carbuncles, break out in

in different glandular parts; after which strong marks of putrescency ensue, displayed by petechiæ, hemorrhages from different parts, and a colliquative diarrhœa, which proves fatal. These symptoms are considerably diversified in different individuals, but, joined with the common ones of putrid fever, are sufficient to give some idea of the appearance of the disease. From this description it must appear, that the most constant and primary symptom of the plague is fever; but there have been some instances in which there has been a total absence of this primary symptom.

The second symptom deserving notice, consists of the nervous affections described, particularly tremor of the upper extremities.

The third symptom is the affection of the head, which is varied in its degree of violence, from a phrenitic attack to a common nervous affection.

The fourth symptom is the peculiar glandular affection, or bubo. The glands most commonly affected are the femoral, then the axillary, next the parotid, sub-maxillary, &c.

Where dissections of plague subjects have taken place, the glandular system has been found universally affected.

The next symptoms are those of the abdomen, marked by the bilious vomitings. On pressure of

the hypogastric region there is always found some uneasiness in the region of the liver, and extending from this organ downwards.

The next symptom is displayed by the petechiæ or spots; but these are not constant attendants of the disease, many cases occurring without their appearance.

The next symptom respects the state of the pulse, which is generally small and frequent, and often at the wrist not perceptible. When felt from the carotids, it beats from 130 to 140.

Another symptom characteristic of the disease, and remarked by some practitioners, is a particular look of horror, accompanied by a strong cast of the eye, which is first watery, next bloodshot, and lastly yellow.

The last symptom particularly attendant on the plague, is an unusual dryness of the skin, it being with the utmost difficulty that perspiration can be excited.

Though this disease is in general fatal, many instances of recovery occur; and it is as difficult to give an opinion in the state of convalescence, as during the disease, since many who are apparently recovering fast, and have lost the fever, drop down suddenly and expire. The chance of recovery is generally in proportion to the facility with which the gums and skin can be affected.

The treatment of this disease, like that of every

every other attended with great mortality, has been much varied by practitioners; but from all the facts adduced, it would appear that the mercurial plan has proved the most effectual. The calomel is to be here given in the same manner as in the yellow fever. The body should be sponged with vinegar and water, or lime-juice; and the diluted nitric or citric acid should be given as a common drink. Much depends on the early use of the remedies; and, where the strength begins to fail, the addition of stimulants to the mercurials is found an essential part of the practice.

The prevention of this disease is to be effected by the means already pointed out for counteracting contagion in other infectious diseases. It has been remarked that the nitric fumigation, when freely used and constantly kept up, has been more useful than any similar plan *.

To

* The nature of the plague is as little known as that of many other diseases. To attribute it to effluvia or contagion, is saying nothing, and throwing obscurity on a point of the question, which is not essential. I shall argue more to the purpose, by saying that the plague arises from the insalubrity of certain parts, and the impurity of the air. This was the opinion of Hippocrates; for, according to that Father of Medicine, the proximate cause of every disease is the air, which, in proportion to its rarefied or condensed state, contains morbific principles that penetrate with it into the human body. In fact, in the

To shew the resemblance between this disease and yellow fever, the leading points in which they agree are opposed to each other, in the following table.

Points

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the countries of Africa, for example, in Egypt, where the plague is endemic, it always appears with the hot and moist winds from the south; and when the north wind commences, its ravages cease.

From a constant proof of this phenomenon, as given by every observer, it is not probable that the plague is a destructive emanation from the samm, or wind of the desert, which Bruce describes as killing like a stroke of lightning.

The plague, however, was not known in Egypt in the early ages, notwithstanding the prevalence of the desert winds. Its ravages are not mentioned by Herodotus; nor was it known while that province was a Roman colony; but as soon as it fell to the weak Emperors of the East, who let every thing go to destruction; as soon, in short, as Egypt was invaded by the ferocious Amrou, the lieutenant of the Caliph Omar, this fine country became the residence of the plague.

We ought not indeed to believe the assertion of Thucydides, Lucretius, and Pliny, that the plague proceeds from Ethiopia. Bruce, who travelled through Abyssinia, does not mention its existence at Axum. The caravans which proceed every year from the interior of Africa, had spread it in Upper Egypt before it was known at Cairo; but the contrary now takes place, for it comes from Lower Egypt, where it seems to be concealed in the environs of Damietta, and is propagated by contact. From the time of Procopius it has appeared in a similar manner, as is evident from his description of a pestilence which spread over all the known country. It began, says he, in

Egypt,

Points of Resemblance between the Plague and the Yellow Fever, as stated by Mr. M'Gregor.

PLAGUE.

1. The attack is sudden, and attended with great prostration of strength.

2. The head is the part principally complained of at the commencement; afterwards the abdomen and limbs.

3. In a majority of the fatal causes, there is an

Egypt, amongst the inhabitants of Pelusium, and gradually extended itself to Alexandria, in the other provinces, and in those parts nearest to Egypt. Professor Desgennettes makes the same remark, when stating that the epidemy, by which he means the plague, appeared at Damietta in the month of September, and afterwards in the marine hospital of Alexandria.

The opinions of travellers, who pretend that the plague is conveyed from Constantinople to Egypt by ships, is absurd. We have too many facts to overthrow the assertion, were they only in the number of our soldiery who were destroyed by the plague in Egypt, at a time when all communication with Constantinople was cut off. But it may be said, that the fortunate territories of the East, the Grecian provinces subjected to the power of the Turks, are afflicted with this calamity from time to time: it however arises from the lakes of Albania and the Morea, together with the ruins of so many towns, which cause exhalations that favour its development.

uncon-

unconquerable irritability of stomach, and a vomiting of frothy bile.

4. The biliary system appears in most cases to be the seat of the principal complaints: there is often pain, sometimes swelling of the liver, and the bowels are generally unequal in their functions.

5. In many of the cases which came under observation, there were remissions; and, in some cases, particularly those of the Sepoys, there were perfect intermissions.

6. The disease frequently alternated with the tropical diseases arising from morbid action of the liver, viz. cholera, icterus, hepatitis, and dysentery.

7. In a majority of cases we observed glandular swellings, petechiæ, maculæ, or vibices.

8. Some of the patients died without bubo or irritability of the stomach.

9. In those cases which proved fatal, it was found impossible to produce salivation.

YELLOW FEVER.

1. Men are suddenly attacked on duty, and with the greatest debility from the commencement.

2. The

2. The attack is almost constantly attended by a pain of the head; the eye being first of a watery suffusion, then bloodshot, and at last yellow.

3. The black vomiting is an almost constant attendant of the fatal cases; and rarely any thing is found to relieve this symptom.

4. From the yellowness of the body so generally seen, as well as from the very unequal state of the bowels, we were led to think, that, in this fever, the system of the liver is principally affected.

5. In a great many cases there are remissions; and some cases terminate in intermissions.

6. In several instances the disease alternates with dysentery, and in some cases with affections of the liver.

7. In some cases there are swellings of the parotid gland, petechiæ, maculæ, and vibices.

8. Several die who never have the yellowness nor the black vomiting.

9. Whenever we can excite a flow of saliva, the patient is considered to be safe, and does well.

OPHTHALMIA.

The second epidemy, and next to the plague n frequency, is ophthalmia, or the affection of the eyes, which, though a less fatal, is a still more distressing malady. Its attack is so general, that even animals are not exempted from it; and it is not confined to Egypt, Syria and Persia being equally subjected to its attacks. It is remarked to make its appearance when the plague ceases. From this circumstance, as well as from the additional observation that the fleet at Aboukir bay was as much affected by it as the army on land, and from its re-appearance among the troops on the passage home, there can be little doubt of its being of a highly contagious nature. The cause of this contagion, like that of most others, is unknown; but it is the decided opinion of one writer, that it is favoured by the climate of Egypt, where the excessive heat, joined to the sandy soil, cannot fail at particular seasons, when great droughts prevail, to make a remarkable impression on the organs of sight. Whatever the cause of this ophthalmia, it is certain that it is attended with the most acute inflammation. The attack is sudden, and very generally in the night; and the symptoms have no sooner taken place, than they advance with an alarming rapidity.

dity. The first feelings of the patient are those of a burning heat of the eye-ball, or of a sensation of needles being passed through the eye, the ball of which is considerably swelled, with tumor of the eye-lids, and sometimes of the neighbouring parts. There is in most cases a copious flow of tears, which feel hot and scalding, and as they flow excoriate the face. These symptoms are frequently accompanied by a racking head-ach, and by general fever. An œdema of the eye-lids frequently occurs in the early stage of the disease, and an invertion of the *celia* in the last stages. The duration of the disease often extends to two or three months; and when it has continued for some time, the general health is affected. Its termination is frequently by diarrhœa or dysentery; and at times the patient turns hectic. Where the disease is very acute, fever is induced by it for many days; and if the inflammation be not resolved, it terminates either in opacity of the cornea, or in suppuration of the eye-ball.

The treatment of this disease is equally varied as its cause is unknown. The common modes of practice are by no means applicable to it; and it requires, during the first stage, the most cautious management on the soothing plan. The best practice, for the first twenty-four or thirty-six hours, is carefully to syringe the eye with tepid water, at least six times a-day, and to join

join this with a total exclusion of the patient from light, keeping him cool, and observing a strict antiphlogistic course. When this period has elapsed, mild astringent solutions may be employed, as a weak solution of sugar of lead, or vitriolated zinc; and in order to assuage pain, when very violent, a small addition of camphor, or solution of opium, may be made. Occasionally a cataplasm with opium should be applied; or two or three drops of opium instilled into the eye. For the œdematous swelling a saturnine poultice, and the *coagulum aluminosum*, have been found useful. Blistering a large surface near the seat of the disease, and keeping it open, has afforded great relief. The general fever and pain have been treated with advantage by the internal use of opium in large doses. This remedy has been extolled in the highest degree by Dr. Trotter, who gave it in tincture, in doses not less than from sixty to a hundred drops. In cases of long standing, setons in the neck, with the internal use of the bark, have done much towards a cure.

In spite of these means, when the disease has passed into what we may term its secondary state, and opacity of the cornea or specks are formed, escharotics are necessary. Those preferred by Egyptian practitioners, are a solution of lunar caustic, or the *aqua phagœdenica* of the old Pharma-

Pharmacopœias, previously to which the vessels of the opaque part should be divided. A celebrated ointment may be also mentioned here, composed of white vitriol, tutty, and cinnabar. This is found very successful after the application of leeches and scarification.

This disease of ophthalmia is considered by the natives to be occasioned, in many instances, by sleeping in the night air. As a prevention to Europeans in that climate, the washing of the eyes frequently with cold water, in the course of the day, will have a very salutary influence; and if to this be added the wearing of something over the eye, the disease will seldom occur. Patients, on recovery from this complaint, are very apt, on any imprudent exposure, to suffer a relapse.

As this disease is one so frequent and fatal in Egypt, we are desirous of giving every information relative to it. I cannot do this better than by inserting the following note from an eminent physician of the French Staff of the Army of Egypt *.

* Dr. Antonio Savaresi, one of the physicians to the French army in Egypt, on the Cure and Prevention of the Endemic Ophthalmia of that Country.

He first divides this complaint into the sthenic and asthenic; the one depending on an excess, the other on a defect of tone.

FEVERS.

Besides these two epidemics, this station is equally subject to fevers as other warm climates: and here they assume chiefly a remittent or intermittent

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The former affects the bulb of the eye; the latter, sometimes the *tarsus*, sometimes the *tunica conjunctiva*.

" In the beginning I purge in all the three species, without distinction, with an ounce of *magnesia vitriolata*, otherwise called Epsom salts.

" The sthenic ophthalmia requires very close and strict attention, inasmuch as the cure depends on the efficiency of the first remedies. In this case, a blister to the nape of the neck, and local bleeding from the temporal or jugular vein, are of great utility, and ought not to be omitted. An hour after the letting of blood, a sensible change in the complaint is perceived, and next day the violent pain of the part and the severe headach diminish, or at least cease to torture the patient. This effect is often retarded, and the complaint advances, accompanied with a slight feverishness. In order to stop this, it is necessary to repeat the bleeding and the purges.

" A low diet is prescribed, a decoction of barley with cream of tartar, and a resolving collyrium, composed of opium dissolved in spirit of wine, and in decoction of saffron, which contributes to calm.

" This method of cure should be continued till the swelling of the eyes is diminished, and the eye-lids begin to be turned up with a degree of swelling, an appearance which always proceeds from the weakening and relaxation of the vessels. In consequence of this change a saponaceous collyrium is ordered which

mittent form. They are frequently very fatal. Their appearances do not differ from those of the bilious remittent fevers of tropical countries: like them, they often end in dysentery, and yield to the same mode of treatment. This treatment consists, after clearing the bowels, in exhibiting calomel,

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which consists of a solution of soap in spirit of wine, by the use of which the eye-lids resume their natural situation, and easily open, so that the cornea being now visible, is found sometimes red or covered with spots. In the first case, cold water with vinegar is employed with good success; and in the second, recourse is had to the dry collyrium, composed of sugar-candy, alum, and nitre, which destroys the spots in a few days. By means of these topical and internal remedies, a complete cure is effected in the space of a month or two. If the complaint should not be removed in that time, there will be too much reason to despair of a cure.

"With respect to the cure of the second species of ophthalmia, I have applied only a tonic collyrium of white vitriol dissolved in vinegar, water, and proof spirit. This remedy has afforded the utmost relief, and has cured the complaint radically in twenty days or a month.

"Another collyrium, made of common salt dissolved in vinegar and water, has served to cure the third species of ophthalmic inflammation, which is more simple, but obstinate like the preceding. In the maritime countries of Italy, I have seen this indisposition cured with baths of sea water.

"Many praise the application of emollient and resolving cataplasms in all the three species. Observation teaches us that this remedy is noxious, since it relaxes the part, increases the pain, and produces other evils.

calomel, so as to affect the mouth as early as possible; and it may be joined, to produce this effect the sooner, by the nitric acid.

Besides acting as a cure, mercury has been found a preventative of this complaint; and a

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"Such has been the curative method which I have used in the military hospitals of Egypt, to save from blindness those unfortunate soldiers who were attacked with this disease, and placed under my care. Of a thousand, or thereabouts, who were affected with this disorder, I had the mortification to see two entirely lose their sight, and some others lose the sight of one eye.

"*Preventive Means.*—The means I am going to point out, cannot be practised by soldiers, as their necessary duties do not admit of it; but they may be of assistance to those who have the proper convenience for availing themselves of them.

"First, exposure to the rays of the sun with the head uncovered, should be avoided, and to the humidity of the night without some precaution to shelter oneself from it. In the second plan, it is necessary to bathe the eyes twice or thrice a-day with fair water mixed with vinegar or lemon-juice, especially when the organ has been irritated by dust, smoke, or any external accident; and when it has been weakened by too much sunshine or humidity, it ought to be sprinkled with spirituous or other tonic liquors. Finally, it will be advisable to abstain from salted food, and at the same time to maintain suitable perspiration, to preserve the hair of the head a little long, to avoid exposure to cold after being heated, and to attend to the intestinal evacuations.

"The success of these simple preservatives has been confirmed by observations and experience. When seasonably practised, they prevent the disorder, and preserve the sight."

blue

blue pill, exhibited every day, on a voyage, has prevented the infection being taken on reaching the place of destination, where this fever has raged.

HEPATITIS.

This disease occurs here more in the acute form than in the East Indies; and chronic cases of it, brought from that quarter, become mitigated, on removal hither, without any remedy.

The treatment of this species of the disease always requires, at the commencement, the antiphlogistic regimen to be followed; after which, mercury must be administered with great address, and alternated occasionally with the nitric acid; or these may be combined together in proportion as they make an impression on the symptoms.

DYSENTERY.

This disease we have already treated, both as the attendant of a temperate, and of a warm, climate. In the first case, its cause and seat seem entirely to reside in the intestinal canal; in the second, it either originates from, or is accompanied by, an affection of the liver. The dysen-

tery on this station seems to partake more of the nature of that which appears in a temperate, than in a warm, climate. Hence it yields more readily to an antiphlogistic course, and to mild purging, combined with the means of promoting a slight determination to the skin, than it does to the use of calomel. Should it, however, pass into the chronic state, small doses of calomel will be found most useful.

A very simple mean of cure, in this disease, has been pointed out by the late Dr. White, and consists in swathing the body in flannel. "On the instant of attack," he observes, "let the belly of the patient be invested with five, ten, fifteen, or, if fewer will not suffice, twenty folds of a flannel bandage, the breadth of which is from six to ten or twelve inches, or more: let the patient, moreover, be clad in a flannel shirt, or waistcoat, with sleeves, and immediately put to bed. If neither flannel shirt nor waistcoat can be procured, the patient may turn into bed well buttoned up in a regimental jacket. If it should be convenient, he will also do well to dilute with warm gruel; while perspiration, both general and topical, is further promoted by a covering of two, three, or four blankets, and by the exclusion of cold air, particularly of partial currents.

"If the purging and tormina should still continue, or if the patient should complain of headach,

ach, or betray any other symptom of general fever, no time is to be lost in recurring to the lancet, and we must not be deterred by the low state of the pulse. It is the removal of pain and purging that is required; and, from successful experience in some hundreds of cases, I can confidently say that practice will constantly succeed. I have frequently taken from forty to fifty, and sixty ounces of blood in a couple of hours, and, in so doing, saved many valuable lives."

In most cases, however, the disease yielded to flannel rollers; and it will not even be always necessary to put the patient to bed.

To prevent relapses, as well as first attacks, exposure to cold or moisture, or even to agreeably cooling currents of air, is to be carefully avoided, especially when the body is warm and relaxed, as during sleep, or after fatigue. In such circumstances, anointing the body with oil, and wearing warm clothing, particularly a flannel shirt, will be found useful. All patients should be anointed on the removal of the rollers.

Such are the principal diseases which more immediately attack the Egyptian station; and the proportion of the frequency of each among the British, will appear from the following table.

Extract from Mr. M'Gregor's Table on the Health of 3759 Europeans.

	No. of Patients.
Plague,	38
Fever,	18
Liver complaints,	64
Dysentery,	148
Occasional diseases,	47
Deaths,	309
Invalided,	117
Total,	741

Thus the proportion, according to the above statement, of sick, invalided, and dead, was nearly one-fifth of the whole. With the natives of India, 4127 in number, the ratio was as follows:

	No. of Patients.
Plague,	127
Fever,	92
Liver complaints,	12
Dysentery,	47
Occasional diseases,	99
Deaths,	391
Invalided,	41
Total,	809

The proportion here is also one-fifth. On the subject of these diseases we may observe, that the plague

plague affected fewer of the Europeans than of the native Indians; while the dysentery and liver complaints affected the Europeans more, and the native Indians, compared with the plague, in a proportional less degree. Did this exemption from dysentery arise from the mild diet, and use of aromatics, among the Indians?

COAST OF AFRICA.

Diseases the same as in other tropical climates—Frequency of fevers—Consequences of these fevers.—Evils of less magnitude.

Coup de Soleil, or Stroke of the Sun—Its treatment.

Prickly Heat.

Guinea Worm—Description of the disease—Its causes—Mode of treatment.

The next part of this station is the African Coast, the acute diseases of which differ in no respect from those of the tropical climates already described. Fevers are here equally fatal as in the West Indies; and it has been alleged, that from this quarter the yellow fever was originally imported. The most frequent and fatal fever on this coast is of the remittent kind. It begins with considerable mildness, and gradually steals on, until at length the symptoms acquire a particular violence, and the patient is suddenly cut off.

The treatment is here the same as in the bilious remittent fever of the West Indies.

Intermittents are also common on the African coast, and are very liable to be succeeded by that peculiar

peculiar affection of the liver termed the *ague-cake*. The treatment of this symptom is the same as that of hepatitis, already so often described.

Next to fevers, dysentery is a frequent disease on some parts of the African coast: it is however marked by no peculiar symptoms, and does not require a treatment different from the one followed up in other situations.

Leaving, therefore, these more violent diseases, we shall treat of a few evils of less magnitude, which not only occur here, but are also common to other tropical regions.

COUP DE SOLEIL, OR STROKE OF THE SUN.

This is a species of apoplexy arising from long exposure to a hot sun, which produces a particular fulness in the head, as if it were ready to burst. There is at the same time a very disagreeable beating in the temples, and a shortness of breathing, or panting. When, by the effect of these symptoms, the person falls down as if insensible, active means of relief must be immediately had recourse to. The patient must be carried to a cool situation; his head and breast must be raised from the ground; and a current of

of air be produced by fanning him. Plenty of cold water must be dashed over his body; and this fluid may be rendered still cooler by mixing it with vinegar, or dissolving in it a portion of sal ammoniac or common salt. If in a convenient situation, the body may be placed up to the breast in warm water; at the same time that cloths, dipt in very cold water, are applied to the head and neck, and renewed before they have acquired any warmth. A clyster may be also given, composed of a quart of cold water, in which, if the patient be costive, two ounces of Epsom salt may be dissolved just before it is administered, water being chiefly rendered cooler by the addition of salts during the time of their solution. By these means, the patient will be recovered from the immediate danger of this attack. But if a second attack of the same kind should occur, the evil is then more serious; and it requires a voyage to a cold climate, before the patient perfectly recovers his former state of health.

PRICKLY HEAT.

This, though a trifling complaint, is generally the first inconvenience felt by an European on his passing into a tropical climate. It consists of

of small red spots, somewhat resembling flea-bites, and chiefly spread over those parts of the body which are covered with clothes, particularly the inside of the arms, thighs, breast, and forehead. This eruption is attended with a very troublesome itching, which is increased by warm liquids, or warm clothing. The spots are also rendered more numerous by the same means. This affection, though inconvenient, is considered as a mark of high health; and, in consequence of this idea, many persons suffer great anxiety, either on its disappearance, or because they have not so extensive an eruption of it as others. Hence an improper mode of treatment is often adopted by the patients themselves, who indulge in warm diluent liquors, which increase the eruption, and render the itching still more uncomfortable. The duration of this eruption, when left to itself, is very uncertain; at times it disappears entirely in a few minutes, and re-appears almost immediately after. The disease gradually ceases in proportion as the person becomes accustomed to the climate. With respect to the treatment, all the precaution that is necessary is to keep moderately cool, to avoid drinking warm liquors when the itching is severe, and to take occasionally a gentle dose of salts.

GUINEA WORM.

This disease is very frequent in all tropical climates, particularly on the coast of Africa, and is pretty uniform in its appearance. The patient is at first sensible of an itching; and, on examining the part, a small blister is generally to be traced. Frequently two or three of these blisters manifest themselves; and at times the part has the appearance of being stung with nettles. Beneath these blisters, or other affections, on raising the skin, there appears a piece of mucus, of the breadth of a sixpence, on removing which the head of the worm is to be seen. It is generally firmly attached, and requires force to detach it from the parts beneath. When once detached with the forceps, it can be twisted round a ligature, or a piece of lint, and by this mean a portion of it, a foot or two in length, may be extracted in the course of one day. In its appearance it resembles what is called bobbin, or small tape, and is of the same size. It is transparent and moist, and appears to contain sometimes like a white liquid. As much of it as will come away without pulling, is to be daily extracted. It is always dangerous to use force, on account of the risk

risk of breaking the worm. When this accident happens, it occasions the most acute pain, accompanied with swelling and inflammation of the neighbouring parts; and these symptoms will often continue for two or three weeks. In this case the worm also takes a different course, and soon shows itself in another part. The seat of the Guinea worm is generally under the cellular membrane; but at times it makes its way into the fascia, and under the muscles. If fever do not arise at the commencement, it is always attendant on its course, and is often considerable when the inflammation runs high. This malady frequently ends in mortification, when large sloughs are thrown off. At times, when the worm takes a particular course, alarming hæmorrhages ensue. The consequence of its appearing in different places, is the production of so many ulcers, or fistulous openings; and thus the whole member is at length affected, and a profuse suppuration ensues. The worm then comes away dead, or is discovered in pieces upon the matter. After one worm has been brought away, a succession of others will frequently appear in the same patient, and similar effects arise from each of them.

Every part of the body is occasionally the seat of this disease, but the extremities in particular; and

and in this preference the worms in question appear somewhat to resemble the itch.

The cause of their production, like that of other similar insects found in the body, it is not easy to trace. It has been ascribed to the water of the different countries in which they appear, but on no just grounds. Extreme cleanliness, however, is always a certain preventative.

The treatment of the Guinea worm constitutes a particular business of the native doctors of India and Africa. In the extraction of this insect they are eminently successful; and this requires a particular art. They first feel with their fingers, for a long time, for the body of the worm, and proceed to make an incision, as near as they can judge, over its middle. The worm is now extracted by its duplicature, and both ends come out at the same time. This practice it is difficult for an European to imitate, as he does not possess the same nice feeling as the Indian. If, however, an incision be made in the same accurate manner, so as to get at the middle of the worm, by the means of a pair of large forceps, it may be pulled out in considerable portions, and frequently in an entire state. To obviate the inflammatory symptoms attending this disease, leeches, sedative and astringent lotions, cataplasms, fomentations, &c. are applied, as required by the circumstances of

of the case. A good deal of attention should be paid to the malady in all its stages; but the most successful treatment will be found to reside in unctuous substances, particularly mercurial ointment.

STATION

OF

HIGH NORTHERN LATITUDES.

Introduction—Means of preserving health on that station; by addition of clothing; alteration of diet; regulation of discipline, &c.—Disease of this station—Scurvy—Inflammations—Rheumatism—Affections of the Chest.

To conclude the subject of Naval Medicine, it remains to consider the High Northern Latitudes, to which a squadron may be at times ordered. The chief intention will be to guard against the effects of extreme cold; and for this purpose, the clothing, diet, and other circumstances, should be properly regulated. The clothing should consist of the warmest flannel covering that can be procured. The diet should be composed, in a greater proportion than on the other stations, of animal food, on account of the appetite which the extreme cold creates, the very powerful and active energy the possesses for digestion. Relatively to the

the drink, a quantity of spirituous liquors should be here allowed, and will be essentially necessary. Thus, while tropical climates, in guarding against diseases, require the food to consist chiefly of vegetables, and the drink to be of the diluent kind, the Northern Latitudes, on the contrary, being deficient of that principle of heat so necessary to the support of animal life, demand the vigour of the system to be supported by artificial means. In directing, however, this diet, the predisposition to disease which always exists at sea, and which is equally strong in the extreme cold as in the warmer regions, must be at the same time counteracted, and the usual supplies of preventatives against scurvy must not be lost sight of, but regularly employed. The citric acid will therefore be properly mixed with the allowance of spirituous liquors. Independently of the diet, the circumstances which will require regulation refer to discipline and exercise. Thus, the exercise should not be long continued at a tir
on deck ; but the men should be frequent'
lieved. The same observation will app'
watches ; and after the dut
on their going below.
cold should be rer
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With resr
scurvy an

ones. The first of these has been so often treated, that nothing new remains to be said, either on its nature or management. The inflammations consist chiefly of rheumatism and affections of the chest, both which will yield here to the usual means of cure, without the smallest necessity of altering the mode of proceeding.

OF WOUNDS.

The appearance of a wound is well known, and requires little definition. By this injury the teguments, and the soft substance below, are divided; and, according to the various circumstances in the texture of the divided part, the nature of the cause that produces the injury, and the extent of the injury itself, wounds have been divided into a number of different species.

The symptoms of a wound are, the retraction of the divided part, where the accident happens, and an effusion of blood, in greater or less quantity, according to its extent. These appearances are succeeded, in a certain time, by the approach of inflammation, as an effort of nature to repair the injury, and restore the part to its former state. This injury is always attended with more or less pain; and in proportion as the inflammation supervenes, it is accompanied by fever. The effect of this last symptom is to produce a termination of the inflammatory state, which, if the injury has been extreme, ends in gangrene, or, where more moderate, by the effusion of a serous fluid from the surface of

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PART II.

NAVAL SURGERY.

HAVING finished our consideration of the Medical Part of this Work, we are now to enter upon a review of the various local diseases which form the subject of practice at sea. In treating this part, it is proper to notice, that a general system of surgery is not here aimed at, but merely such parts of it as are the particular subjects of Naval Practice. Hence medical, more than operative surgery, should form the chief pursuit of those engaged in the service; the operations which occur at sea being few in number, though important, and the operative surgery, where the case admits, being generally reserved for the hospital, as soon as the ship gets into port.

This part of our subject, or Naval Surgery, we shall arrange into three divisions, of Wounds, Ulcers, and Occasional Accidents.

the wound, which fluid is gradually converted into pus, with an alleviation of all the inflammatory symptoms. The healing of the part then takes place, by the appearance of red healthy granulations, which gradually fill up the loss of substance, till the surface is nearly level, when a cicatrix takes place, by a stop being put to the farther growth or extension of the part.

To form an opinion on the termination of wounds, requires a great variety of circumstances to be taken into the account; and the chief of these may be reduced to the following heads:

First, The state of inflammation, which, if too great, may terminate in gangrene, or, if deficient, may suspend the process of healing.

Secondly, The tendency to a lodgement of pus; for here our opinion is more unfavourable than where a free discharge takes place.

Thirdly, The constitution of the patient, seeing that a fault of temperament, and the advanced stage of life, are equally unfavourable to the cure of wounds.

Fourthly, The texture of the part. Thus the division of a soft part more readily heals than when either a tendon, a ligament, or a part of a compact structure, forms the seat of the injury.

Fifthly, The particular part of the body. Thus, wounds of cavities are highly dangerous, compared with those which affect surfaces: wounds

of the extremities are easier healed than those that attack the vicinity of joints. Wounds also of the large blood vessels are always to be dreaded, on account of the danger of hæmorrhage.

Such is the progress, and such the opinion to be formed, on this first division of the subject, or wounds; and these injuries at sea being chiefly the consequence of gun-shots, that species of them claims our chief attention here.

GUN-SHOT WOUNDS.

Gun-shot wounds are distinguished by a peculiar violence of inflammation, with the appearance of deep sloughs or eschars, resulting from the contusion which always attends the injury.

Two circumstances prove fatal in gun-shot wounds; either the occurrence of gangrene, to which they are always disposed, or an excess of suppuration, exhausting the constitution of the patient. Frequently also the hæmorrhage occasions the loss of life; and from these circumstances our opinion, with respect to their termination, is to be drawn.

In the treatment of these injuries, more than of any other species of wounds, the immediate stopping of the effusion of blood forms the first and principal step; and this is done most readily, in

Plate 2 p. 249

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in a temporary way, by the application of the tourniquet. Various forms of this instrument have been invented; and the simpler it can be rendered, the more readily it will answer the purpose. As loss of blood is the principal cause of the number of deaths which take place at sea during an engagement, every ship should be provided with a certain number of tourniquets of the simplest construction, for ready and immediate application. To save the lives of the wounded as much as possible, it is also a proper step that the crew themselves should be taught the use of this instrument. Convinced of the propriety of this measure, when in the Navy, I caused the men to be instructed, particularly those stationed in the tops, they being most distant from the assistance and attention of the Surgeon. This plan I communicated to the late Mr. Bird, then Surgeon of the Arrogant, and afterwards Surgeon to Lord Hood; and the practice in consequence became general through the fleet. My letter on this subject was afterwards published by Sir William Blizard, in his well-written popular Lecture addressed to the Pupils of the Marine School. In those parts of the body where a tourniquet cannot be used, as in the head and trunk, pressure with the hand must be applied; or where it cannot be made, the application of pieces of sponge, or dossils of lint, may be pressed upon the

mouths

mouths of the bleeding vessels, till a more effectual restraint of the hæmorrhage can be procured.

These means, then, will be sufficient, and are the only ones in our power, till the Surgeon has an opportunity to taking charge of the wounded person, and applying the proper treatment that the circumstance of his case requires.

The first step, on examining the wound, is to make a permanent ligature on the vessels from which the bleeding proceeds, and this may be done either with the needle, or tenaculum. In these accidents at sea the tenaculum will be always preferable, where the weather is such that the motion of the ship will permit it, as it includes less substance in the ligature, and allows afterwards a freer examination of the wound; besides this, symptoms of lock-jaw are less apt to appear where this mode of securing the vessel is applied. But where the state of the weather does not admit this mode of securing the vessel, the ligature must be preferred. On checking the hæmorrhage, the examination of the wounded part is the next step to be pursued; and by this examination it will be readily discovered whether any shot or extraneous matter is lodged in it, and in what situation. An attempt must then be made, when any such substance is discovered, to remove it, provided it be practicable, and this is accomplished in one of three ways; either

either by the use of the forceps, when the foreign body is seen, and can be readily come at without much injury of the contiguous parts; or by extending the wound to the seat of the irritating matter, when the distance to it is not great; or lastly, by making an incision, or counter-opening, into the place of its lodgement, wherever this can be accomplished with safety, and when the distance is too great to justify the adoption of the former method.

There are situations, however, in which all these means will fail of success; and though it is always desirable that extraction should take place, yet it is a fact now sufficiently known, that in all the soft parts of the body, extraneous substances may remain, without much inconvenience to the patient, till nature effects their expulsion by the process of suppuration *. Sometimes they even continue for life.

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* The following circumstance fully elucidates the truth of this observation:

An iron spindle, of about three inches in length, remained sunk, during eight years, without any serious effects, in the orbit and brain of a child, six years of age when the accident occurred. After that it was extracted, in consequence of the pains he complained of. Fever came on, with continual headachs, &c. and he died the ninth day. In this case, the superior part of the orbit was pierced, and the inferior part of the brain in a state of suppuration.

These

These preliminary points being settled, the treatment of the wound becomes the next object; and in conducting this treatment, three stages are to be remarked in the progress of the cure. Much nicety is required in the management of the first stage, the tendency to gangrene arising here from an extreme action of the vessels. If the hæmorrhage from the accident has not been sufficient to relieve this state, then blood-letting, both general and topical, must be freely performed. Indeed this precaution cannot be too strongly attended to. The applications to the wound should consist entirely of emollients: after covering its surface with a soft liniment spread on linen, a common poultice should cover the whole, the patient being laid to rest, and an anodyne administered, in order to procure the necessary repose.

The second stage is that marked by suppuration, or matter formed in the wound. Here the treatment must be directed to the support of the strength of the patient; for the fever connected with excessive suppuration depresses the system, and, in a short time, if allowed to proceed, changes the healthy appearance of the wound. This excessive suppuration seldom appears till after some time: when it does appear, every means must be employed to strengthen the body, and increase its tonic action, so that hectic fever

may

may be either prevented, or not allowed to proceed. Thus, wine and elixir of vitriol, will prove the best remedies for lessening the suppuration; opium for suspending diarrhœa, should it have commenced; bark for taking off the state of fever; and air and cleanliness for amending the general habit. In the commencement of this stage of suppuration, there is always danger of hæmorrhage in gun-shot wounds, as the contused parts, or eschars, then begin to be cast off. As a precaution against this accident, a tourniquet should be so placed as to be readily applied on the least appearance of effusion of blood, till the more permanent means by ligature can be had recourse to.

The third stage is properly the one of healing, or, as it is otherwise called, of incarnation. It is promoted by giving a free discharge to the matter from the sore; and the member should be placed for this purpose in a dependent posture, the discharge being at the same time assisted by some degree of pressure on the wound.

Next to a free discharge, attention is to be paid to the removal of irritation from the wound. If it be kept up by some splinter remaining in the part, the extraneous substance is to be removed; but if it arise from the sinuous form of the accident, then a cord or seton may be drawn through the

the wound, or it may be entirely laid open, if of no great extent.

These means may be farther assisted by gently astringent applications, in the form of cerates, instead of the emollient ones formerly recommended. In this way the eure of gun-shot wounds will best proceed; and the frequency of the removal of the dressings is to be entirely regulated by the appearance of the discharge. Until its presence be fully aseertained, there is no obvious neeessity to remove them; and this will never happen before three or four days, until which time the emollient dressings ought not to be laid aside *.

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* Whenever it can be accomplished, re-union of divided parts, of healing by the intention, should have the preference.

The Author of Nature hath, with his usual wisdom, granted certain powers to animated matter, by which it is enabled to regenerate parts when destroyed, and re-unite those that have suffered division.

This principle of regeneration is particularly conspieu ous in the polypus, and in some other insects; but this power progressively diminishes as it ascends to the more perfect animals; and in man, although by no means altogether lost, is comparatively small.

The doctrine and practiee of procuring adhesion, which surgeons, thirty years ago, had no fixed idea of, have perhaps done

In the progress of all wounds, whether from gun shots or other causes, certain constitutional

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done more for surgery than any general observation, not even excepting the discoveries of inoculation.

The process of adhesion may be considered in two different views. The first may be explained in this way: suppose the lips of a recently incised wound are brought together, and retained undisturbed in close contact, either the arteries of the opposite surface will inosculate mouth to mouth, or each cut surface will throw out a glutinous fluid, which will unite and consolidate them. This process of adhesion is termed *union by the first intention.*

But if this salutary process be frustrated by the accompanying inflammation running high, or by the interposition of any foreign bodies, such as the lodgement of balls, ligatures, splinters of bone, wood, &c. or if the wound be inflicted with a poisoned instrument, or if the blood be poured into the cavity of the wound, or if the patient be of a bad habit of body, if he breathe contagious air, if he be seized with any accidental disease, such as fever, diarrhœa, or any general malady, or if there be any destruction of parts, such as compound fractures, phagedenic ulcers, &c.; any of these causes existing, will prevent the immediate adhesion of the divided parts, and another intervening process will take place, which is re-union and regeneration of parts, through the medium of suppuration, granulation, &c. This is termed *secondary union.* Another adhesive process has been termed by some authors *the third natural process*; but, as I conceive it is comprehended in the second, any farther mention of it in this place might be considered as superfluous.

symptoms

symptoms arise, which require a separate treatment. These are, Fever and Spasm.

I. FEVER.

The symptoms which first announce themselves, consist chiefly of inflammation and pain. As the febrile tendency arises entirely from the state of the wound, the particular cause that occasions this increased action must be looked into. If it arise from extraneous matter, that is to be removed, at the same time that a full relaxation should take place in the position of the part, and the farther assistance of opiates be had recourse to. Nor should these means be reckoned sufficient: topical bleeding should accompany them; and fomentations and poultices ought not to be omitted. This fever is often kept up by a partial separation of nerves, to relieve which, their complete division should be made.

II. SPASM.

This is a symptom no less common than the former: it is often very violent, and attended with

with the greatest danger. It is most apt to occur in wounds of warm climates, though not in their first stage; and it is from this symptom that they are chiefly dangerous in those regions. In its degree it varies from the slightest convulsive twitch to the form of lock-jaw and tetanus. When the spasmodic attacks are slight, they will yield to the use of opiates, joined with an attention to ease, and to the posture of the wounded part. When they rise to their most severe forms, they are to be treated in the mode pointed out for the cure of tetanus, in the former part of the Work, by large doses of opium, with the use of the warm-bath, mercury, friction with emollients, &c.

It was formerly a practice in these cases, when the wound was situated in the extremities, to amputate the member; but in every spasm it is well known, that the effect survives the cause; and from want of success, this method of treatment has been laid aside.

These complaints seldom arise while the inflammation of the part continues acute; and therefore the excitement of acute inflammation has been regarded as the surest means of cure. On the same principle the constitutional management has consisted in the use of bark, wine, and tonics; but where these constitutional symptoms do not arise at all, gun-shot wounds are apt to

prove fatal, as already stated, from two other circumstances peculiar to themselves.

The one is extensive mortification in the first stage; the other, the laceration of the parts where the wound occurs in the extremities, this laceration being so great as to require the immediate amputation of the member. The patient too often sinks under the consequences of such an injury.

The treatment in the first case, requires that the general action of the system should be moderated, as already pointed out, even although remedies of a different nature should be necessary to the part.

The extent of injury rendering amputation unavoidable, has much divided the sentiments of practitioners, and the necessity of operating must be in a great measure governed by peculiar circumstances; but the situations to which it may in general be reduced, are, first, injury of the large joints, particularly the shattering and splintering of their bones; secondly, general fracture of a large bone through its whole extent, with corresponding laceration of the soft parts; thirdly, and lastly, contusion and destruction of the soft parts, to such a degree as to destroy their circulation.

WIND OF A BALL.

Connected with gun-shot wounds, is a peculiar accident very common in engagements at sea, and which is termed the wind of a ball. If a cannon-ball, in its flight, passes close to any part of the body, that part is rendered livid and benumbed for some time. It is most dangerous when it approaches the stomach, and has often, in such cases, proved instantaneously fatal, without the least visible mark of injury. At other times, tumors, or marks of violence, are conspicuous. What is remarkable is this, that the wind of a ball has never been fatal on the head.

SCORCHES.

Scorches from gunpowder are equally frequent with gun-shot wounds. They arise from powder accidentally exploding in an engagement; and these accidents are very frequent and fatal. The treatment here is the same as in other cases of burns. The best applications are found to be lintseed-oil, mixed with lime-water or cerussa. This treatment must be joined with the use of opium and laxatives, according to circumstances.

INCISED AND PUNCTURED WOUNDS.

Beside gun-shot wounds, there is another class to which, in the occurrences of war, seamen are also exposed. These are, from the cutlass, sword, bayonet, or any clean cutting weapon.

Where a free incision takes place, the treatment is abundantly simple. After restraining the effusion of blood, which is always the first step, and clearing the wound of any effused matter, it should be closed as soon as possible, by laying its sides in contact, and endeavouring to make them adhere. This is termed healing by the first intention. In order to its being successful, the divided parts must be kept completely together. In a certain time a glutinous excretion will be thrown out, which, forming the connecting medium, an inosculation of the divided parts will take place by its means. This is one of the most important improvements that have been introduced into modern surgery; and, in order to its being successful, the parts must be kept tightly bound together, either by a simple compress and bandage, or by the previous application of a ligature, according to the depth of the wound, or the danger of the recession of the surfaces.

The period of adhesion varies in different cases, but

but generally takes place in a few days, not more than five or six. If ligatures have been made, they may then be removed. Even where a complete apposition has not been effected, this treatment will commonly be successful to a certain extent, and at any period of the accident. There are only two circumstances by which it may be defeated, and which require its being discontinued: these are, first, the excess of the pain and inflammation, where, on account of the depth of the wound, ligatures have been applied. To lessen these morbid symptoms, every mode of producing relaxation of the teguments of the part, should be attempted by emollients and oily applications. Even topical venesection, conjoined with opiates, may be tried; but should these means fail, then the ligatures must be completely removed, and the cure must proceed on the principles of suppuration.

The other circumstance by which this mode of treatment is baffled, is a lodgement of matter; but this may be prevented, in the first instance, by guarding against any cavity being left betwixt the surfaces, especially when ligatures are passed.

The constitutional treatment, in this mode of cure, requires the strictest attention. The antiphlogistic plan must be religiously enjoined, particularly by the observance of a low diet; and should

be laid down as a general rule, not to be departed from, unless in the case of a very enfeebled habit.

When, instead of a free incision, a wound, by being made with a pointed instrument, discovers only a small external aperture, then this accident receives the appellation of a punctured wound; and such wounds are distinguished, not only by this smallness of their aperture, or external opening, but by an excess of pain and inflammation, compared with the apparent degree of injury they display, and also by the difficulty with which they are healed. The causes that retard their healing are, first, the lodgement of matter, and its not obtaining a free vent; secondly, the partial division of nervous parts; and thirdly, the little tendency in the contiguous surfaces to adhere.

The first aim, then, in all punctured wounds, is the same as in the former species, namely, to clear them of any effused blood, and to bring their sides into contact, with a view to heal by the first intention. But should this process unfortunately prove abortive, by an increase of inflammation, and by matter forming, then the cure must depend on giving it a proper vent, so as to prevent any lodgement that may retard the healing. The different ways of executing this depend much on the situation of the wound. The introduction of a scalpel and directory, in order to procure access

cess to the bottom, is always hazardous. The making of a counter-opening, and introducing a seton, is also at times equally dangerous and inconvenient. The simplest method, therefore, is to keep the external opening dilated, either by tents, or metallic tubes fitted for the purpose. Should none of these means, however, be found adapted to the case, this lodgement of matter can only be prevented by the use of astringent injections, moderately strong at first, and gradually increased according to their effects. These injections may be assisted by the farther application of pressure, so that the sides of the wound may be retained in contact.

In despight of any treatment that may be adopted, this kind of wound is the most embarrassing to practitioners, who often fail altogether in its cure.

Such are the several varieties of wounds which become the objects of attention at sea. The general principles laid down, will apply in every situation in which they may occur; but wherever they open into the cavities of the chest or abdomen, which will be known, either by the excessive hæmorrhage, or by some of the excretions of the organs contained in these parts passing out

at the aperture of the wound, then, in general, they may be expected to prove mortal.

In the treatment of wounds of the chest, particularly those of the lungs, the only safety lies in the most copious bleedings, so as to prevent any part of the fluids being extravasated, and occasioning the symptoms of oppression and suffocation, which are so alarming, and which require so immediate relief.

Where, in the wounds in the thorax, blood is effused into its cavity, though their symptoms of oppression come on more slowly, they demand no less alleviation. This is best done by enlarging the external aperture of the wound, so as to give vent to the extravasated matter.

In wounds of the belly, the same treatment will be necessary. As the only chance of saving the patient, bleeding should be performed with a liberal hand. After this, quietness, rest, and opiates, are next in importance, with fomentations to the inflamed abdomen. The bowels at the same time must be kept open with gentle clysters; but no laxatives employed that may produce any irritation. For ten or twelve days the patient must resolutely refrain from all food, that the intestines may not be moved, and that the fæces may not descend into the abdomen. He must be nourished by clysters; or if any nourishment be taken by the mouth, it must be a little

little light soup or jelly, to the end that, when it has passed, it may be readily absorbed. If any part of the intestines is forced out of the wound, it is to be gently returned by the finger, and the external wound sewed up. If the portion of intestine which is forced out, or which presents itself at the opening, is injured, then a single stitch should be passed through it, to connect it with the external wound, when a re-union will in time take place.

OF ULCERS.

NEXT to wounds, ulcers are a subject of the first importance in Naval Practice, though the same variety does not take place in a fleet as on shore. The kinds most commonly met with are those of a constitutional nature, seeing that the simple ulcer soon degenerates at sea, from the particular mode of life, into the constitutional species.

The ulcers, then, that chiefly claim our attention here, are the scorbutic, scrophulous, venereal, and the peculiar epidemic ulcer, which attack ships, hospitals, and wherever patients are crowded together. Every ulcer differs from a wound, in being a chronic affection, and also in three other circumstances by which it is peculiarly distinguished. These are, its state of inflammation, which is never of the healthy or active kind; the nature of its discharge, which always consists of a matter more or less vitiated; and its want of disposition to heal, when left to itself.

The ulcers we are now to consider, are to be regarded as arising from critical depositions on certain

certain parts, producing an erosion of the teguments; and our opinion of them is to be regulated by an attention to three circumstances: namely, the specific nature of their causes; their particular situation, or position in the body; and the habit and age of the patient. Thus, some of the constitutional maladies from which they arise are more easily eradicated than others. Next, when parts of an unpliable texture, as tendon and membrane, form their seat, they are cured with more difficulty than when the same accident happens to soft muscular substance. Ulcers also of the trunk, heal more readily than in any of the extremities, particularly the lower ones. Their vicinity likewise to parts of importance, as large blood-vessels, increases the danger arising from them. The secretions, too, in the progress of life, become always more or less of a vitiated nature; and thus ulcers, in the young and vigorous, afford a favourable prognosis, compared with those that attack the old and infirm.

SCORBUTIC ULCERS.

With these leading circumstances in view, we shall treat of the scorbutic ulcer, the peculiar marks

marks of which are highly characteristic. It has a thin fetid discharge, mixed with blood, often caking, as it were, the whole of its surface. There suddenly prevails a disposition to generate a soft putrid flesh, or bloody fungus; and by its pressure the sore acquires a gangrenous disposition, or œdema of the matter takes place. It is marked also by the puffy appearance of its edges. The cause of this ulcer has already been fully explained in the preceding part of the Work, under the article Scurvy, it being only in the advanced stage of that disease, that it makes its appearance under this form. Where scorbutic ulcers have once made their attack, they are always liable to break out again on the slightest relapse: patients therefore cannot be too cautious in avoiding the causes of this disease, or in suffering any injury in a part near to it.

The cure of scorbutic ulcers depends on that of the constitutional disease which gives origin to them: and on this head we refer to the former division of the Work, where the general treatment of the malady is detailed. The local management of the sore is the only object here. It is to be conducted on much the same principles, and consists in the use of antiseptics, as the *unguentum Egyptiacum*, *mel rosarum* acidulated with vitriolic acid, strong decoctions of bark, and the carrott and fermenting poultices. When the scorbutic

disposition

disposition of the sore is once corrected, the cure may be completed, and the sloughs removed by any gentle escharotic ointment, joined with a proper compression of the part.

SCROPHULOUS ULCERS.

The scrophulous ulcer displays at first a discharge of a matter, either viscid and glairy, or whitish and curdled. It is succeeded by a thin watery sanies. Its edges are often flat, at other times swelled, and painful. Its duration is various, and frequently continues for a length of time, without any visible change; while at other times it heals up and breaks out in a different part. Soft colourless tumors always precede this sore; they vary in the time of their duration, and are always affected by changes of seasons through the whole of their progress. The causes of scrophula are unknown. It is always connected with a general debility and flexicidity of the system, particularly affecting the lymphatic glands in preference to any other part The constitutions in which it generally appears, are those that possess a peculiar softness of skin and delicacy of habit.

On scrophulous ulcers we may observe, that they

they are much determined by the situation they occupy. Thus, a simple glandular sore is easier treated than where it affects a joint, or is combined with the caries of the bones, by the apparent strength of the scrophulous disposition of the habit; seeing that a chance of cure is greater where there is only one, and not several parts affected; and is also determined by the period of life, insomuch that the external scrophulous sores gradually heal up after the age of fourteen.

Though the radical cure of the scrophulous ulcer is still a desideratum in surgery, yet the use of tonics, steel, and cold bathing, seems, in certain cases, to have been of much benefit. These are therefore the best remedies to be employed. Gentle mercurials, also, in the primary stage of swelling, have often been of much service; and saline deobstruents have at times palliated the progress of the disease. This species of ulcer is not so very frequent at sea as the other, on this account, that the men are generally arrived at manhood before they enter the Navy; and at this period of life the external forms of scrophula have commonly disappeared.

It therefore only shews itself here in conjunction with other species, particularly with the venereal ulcer, after a mercurial course, by which the latent constitutional taint becomes exasperated. One great step towards the cure here would

would be, to turn over the men labouring under this disease, to a ship destined to a warm latitude. In the mean time, the best external applications are preparations of lead applied in an aqueous form. Cloths dipped in cold and sea-water are much commended. Unctious applications are always to be avoided.

VENEREAL ULCERS.

Venereal ulcers having been already fully considered in the former part of the Work, when treating of the disease at large, it only remains here to touch on the external treatment of such ulcerations, as they affect the outer skin.

The topical application most commonly employed for such sores, has been the red nitrated mercury, in the form of ointment, and the strength of which must be suited to the state of the ulcer. Caustics are also occasionally of service, as a preliminary step, in order that the diseased parts, especially when connected with any hardened gland, may be cast off; such are the lunar caustic, *aqua phagedenica*, *aluminosa*, &c. But when these sores are of long continuance, and resist entirely the use of mercury, various changes become then necessary, to induce the healing process. These changes cannot be re-

duced

duced to any general principle. They consist in suspending mercury, as a preliminary step, and employing a full nourishing diet, change of air, and the use of the bark. When this does not succeed, the use of opium, and other narcotics, in large doses, both constitutionally and locally, has been tried; and these remedies are rendered more successful by the addition of camphire *.

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* Opium, applied either in a very fine powder, or a solution of it in water, to ill-conditioned ulcers, whether arising from a venereal or scorbutic taint, is, perhaps, one of the best remedies the whole practice of physic can furnish us with. The following instance, among the many I have been witness to, may serve to illustrate its efficacy in ulcers from the former cause.

A gentleman, thirty-two years of age, of a healthy robust constitution, consulted the late Dr. Turnbull and myself, for a large deep ulcer, with hard prominent borders, extremely sensible to the touch, attended with a considerable acrid discharge, which gave him exquisite torture, and had covered, and was in danger of consuming the whole glands. Under these alarming circumstances, mercury, both externally and internally administered, was had immediate recourse to, without the least effect, the ulcer continuing to spread and destroy the parts; but at last fortunately gave way to a strong solution of opium in water, with which it was frequently bathed throughout the day; at the same time he took from three to ten grains of the extract. thebaic. combined with merc. calcinat. By pursuing this course, together with giving him the bark in large doses, at the end of a month he was perfectly recovered; but it was thought

The remedies also already recommended in the treatment of scrophula, have been administered here, on the idea that these ulcers were connected with this constitutional taint. When these various means fail, the case becomes desperate, and the whole of the constitution being at length contaminated, the patient sinks under the progress of the malady.

Such are the principal forms of the ulcers which appear at sea. Closing, therefore, this part of the subject, it is to be observed, that they are seldom so long under the care of the Surgeon, in actual service, as to require that precaution necessary in all cases of a long standing, namely, the insertion of an issue or drain, as a leading step towards the cure. But though the ulcers described are of a constitutional nature, and require both the general and topical treatment we have pointed out, yet the latter treatment may be much assisted by the simple means of com-

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thought necessary to continue the medicine for three weeks longer, gradually diminishing the quantity of opium.

The circumstances of this case points out to us, that what mercury alone cannot accomplish, may be effected by a judicious union of these two powerful remedies. Another mode of using opium in ulcers, is, by means of vapour; this, joined with the vapour of camphire, has a most surprising effect on old chronic ulcers.

pression, employed according to the manner recommended by Mr. Baynton. The manner of applying it, when the ulcer occurs in the lower extremities, is either by the lace stocking, or by a roller spirally laid on, from a good distance below, to the same length above the diseased part. The roller should be of woollen or calico, which, in case of its being applied too tight, will yield in some degree from its elasticity. The compression should be always such as to afford a proper support. So necessary is this support to the cure of all ulcers, that an attempt has been lately made to cure those of a local nature by this method alone. The practice consists in the application of slips of adhesive plaster, brought from the sound surface, on each side, over the sores, till the whole is covered by them. These are succeeded by compresses of linen or calico, laid above the plasters; and over the whole, a bandage or roller of calico or linen, is applied, brought up from the ancle joint to the knee, so as to cover the whole of the member. The covering is to be moistened with cold water, to make it fit closer; and this should be frequently repeated. The dressing should be removed every twenty-four hours, and generally applied in the morning, when the parts are least swelled.

SHIP AND HOSPITAL ULCER.

It has often happened, that a particular species of epidemic ulcer has appeared at sea, with such a degree of virulence, that the slightest scratch or puncture has degenerated into a foul sore, forming an ulcer of a particular description.

This ulcer is covered with a sloughy matter, black and fetid; the edges of the sore are ragged and livid for a considerable space round, but a degree of shining redness extends much farther, with tumefaction both above and below the ulcerated part. When situated in the arm, the pain is excruciating, extending downward to the ends of the fingers: the lymphatics leading to the axilla may be distinctly felt; the glands above are enlarged, and often suppurate. Violent rigors accompany this condition of the sore, resembling the cold

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* It is worthy of remark, that in India, ulcers, particularly of the leg, were very rarely seen; and by Mr. M'Gregor's account, many men in the eighty-eighth regiment, who in Europe were always in hospitals with ulcers, were in India quite free from them. In Egypt they began to re-appear. In the course of six weeks after the army came to Alexandria, on the Egyptian expedition, there appeared seventy, on the general return of the army, and they continued afterwards on the increase.

stage of an intermittent, alternated with heats and sweatings, but not producing a solution of the fever; thirst, sickness, and vomiting, are also concomitants. The eyes and countenance are flushed; there are severe head-achs, not without delirium at times. The pulse, though frequent and full, is by no means hard.

The treatment of this ulcer is divided into two stages. During the progress of fever the antiphlogistic plan is most proper, till the slough separate, and the febrile disposition disappears. The constitution must then be attacked with brisk purges of calomel and jalap, in order to bring down the increased action. Fomentations and emollients are the most proper applications to the part. The second stage begins when the surface of the sore assumes a clear florid aspect; for this ulcer hardly yields as much pus as to moisten the dressings. It is then to be encountered with stimulating applications, either sprinkled over its surface, or applied in the form of ointments. The chief of these are the nitrated mercury and verdigris. During these applications, an occasional opiate, particularly at bed-time, becomes necessary to assuage the violent pain, which constantly indicates some alteration in the sore. The bark is also useful at this period.

This ulcer, on account of the strong fever that attends its first stage, is accompanied by a considerable

derable debility, and a great degree of emaciation, which, however, are soon repaired by a nourishing diet. Though these ulcers generally appear where a puncture or scratch has taken place, yet they are frequently seen to arise without any such casualty, in the form of a pimple. The use of ardent spirits has been considered as the exciting cause of this disease, but it certainly does not arise from this cause solely. The same attention is necessary here, to prevent the spreading of contamination, as in other instances of febrile contagion.

In the treatment of this description of malignant ulcer, and in eradicating the contagion which gave it birth, Dr. Weir, a Commissioner of Sick and Hurt, has been eminently successful. The following is a correct outline of his plan. When wounds or scratches readily degenerate into foul sores, and become infectious, the Surgeon ought to represent to his Captain, the absolute necessity of keeping all such patients without the range of the atmosphere of each other. If it be compatible with the exigencies of the service, and the state of the crew, they should be permitted to remain in their respective births, where they can receive the aid and attendance of their messmates. Much advantage has been recently derived from the stimulant mode of treatment, in the cure of this malignant ulcer, combined with

the internal use of lemon-juice, and fresh vegetables. The washing of the bandages, and of every utensil employed in dressing, in boiling water, has also been of great utility.

The hospital sore, or ulcer, very much resembles the above, and particularly in its contagious nature. It is attended with a considerable degree of fever, characterized by great heat, thirst, a foul tongue, a low, quick, and unequal pulse. There is also a low muttering delirium.

The local affection is denoted by a gleety, pale-looking, flabby sore, deluged with matter, and sometimes blackened with exuding blood.

The progress of this contagion is very rapid; and it differs from the former in being entirely connected with debility of the system, as well as of the part. One course of treatment, therefore, is only proper here, namely, to support the strength of the body by the most powerful means, as bark, wine, and acids; while the strictest attention is paid to air and cleanliness, and the occasional symptoms obviated by the use of opiates.

Another particular species of ulcer is described by Dr. Rollo, as formerly unobserved. Its first appearance is that of a solitary ulceration on the edge of healthy sores, approaching fast to cicatrization. It is of unequal dimensions, and varies in its size, which is in some cases smaller, and in others rather larger, than a pea. Its colour

lour is darkish, its edge jagged, and its bottom unequal and rugged. The discharge, which is thin, and of a peculiar smell, gradually extends every way over the skin, as well as over the surface of the sore: by degrees it thickens, and becomes of a whitish colour, intermixed with dark shades, adhering strongly to the surface of the part, and retaining its peculiar smell. In the progress of this sore, the lymphatic glands near its site become affected and swelled, and a general indisposition of body takes place. The symptoms of this indisposition are, nausea, loss of appetite, heat of skin, a very small and quick pulse, extreme irritability, a whitish tongue, and thirst. The progress of the local affection presents a great variety in the different cases; and the favourable change in its disposition is marked by the appearance of suppuration on the edges of the sore, which gradually proceeds till the dead parts are thrown off, and the healthy granulations take place.

The treatment here is entirely local: the lunar caustic and red precipitate, and also the oxygenated muriatic acid, are successful.

OCCASIONAL ACCIDENTS.

HAVING thus gone through the two principal divisions of Naval Surgery, it remains to notice the occasional accidents which are wont to take place at sea, from injury or other causes. They occur either in the form of tumors, fractures, or luxations.

Of the class of tumors, the only two that are apt suddenly to occur, from the nature of their cause, which is generally violence or over exertion, are aneurism and hernia.

ANEURISM.

This tumor is generally situated in the femoral artery, or in those of the ham and axilla. It is distinguished from other tumors by its strong pulsation. It is gradual in its progress; and its treatment, therefore, never becomes an object at sea, as the patient is generally invalided, and sent to an hospital before an operation becomes necessary.

HERNIA.

This accident, which is more common than the former, consists in the protrusion of part of the contents of the cavity of the abdomen through some part of the abdominal coverings.

The most common form of this complaint is that species termed the inguinal, in which part of the intestine, of the omentum, or of both, passes down through the ring, or aperture of the abdomen, and is protruded, first into the groin, and afterwards into the scrotum.

This protrusion, or descent, is occasioned by a sudden and powerful exertion, producing violent action of the abdominal muscles, as laughing, crying, violent coughing, overstraining in carrying or removing great weights, leaping, falls, blows, &c.

The particular cause which most frequently produces this disease at sea, is that exertion of strength which is necessarily employed in working at the windlass, in weighing up the anchor, &c. It is not to be denied, however, that this affection may occur without the interposition of those causes; and in this case it is generally connected with a relaxed habit of body; arising from a want

want of sufficient tone and firmness, in the sides of the abdomen, to resist the incumbent weight and pressure of the intestines, which are accordingly forced out of the most dependent points, and where, from their structure, there is least power of resistance. Another cause has been also mentioned, as occasioning this disease, namely, the use of much oily matter. Whether this can operate of itself with sufficient effect to produce hernia, may admit of some doubt; but it is notorious that this complaint prevails much with different nations on the Continent, as the Italians, Spaniards, Egyptians, and others, who are strongly addicted to the use of oil *. In the same

* Heat of climate and season, warmth of clothing during the day, and warm covering in the night, must also be reckoned as predisposing causes of this disease. Herniæ, though frequent in England, are much less common here than in the South of Europe, or in Africa. A gentleman thus writes from Malta: "This is the place where hernia should be studied; for, from the extreme relaxing heat of the climate, assisted by the constant exertions which the inhabitants are obliged to make in passing their rocky paths, few persons escape the disease, and it is often of an enormous size."

In Egypt, too, we have the testimony of medical men who attended the late expedition, that herniæ are extremely common there, and often of an unwieldy bulk. Of this, Sir Robert Wilson mentions the following instance: "I saw a man,

same manner, excessive heat, by acting as a relaxing power, may produce a similar effect. The disease, accordingly, though very frequent in Britain, is not nearly so much so as in the southern parts of Europe and Africa. In Malta, scarcely any person is exempted from it. Along with excessive heat, bodily exertion may be adduced as one great acting cause. The frequency of the complaint in Egypt, is another fact which confirms what has been advanced.

The symptoms of this affection are in general sufficiently plain. It is marked by the sudden appearance of the tumor; by the effect of this swelling on the alimentary canal, in producing obstruction and pain, along with nausea and other uneasiness of the stomach; and by its disappearance on pressure into its original seat, the abdomen.

The danger attending this complaint depends entirely on the occurrence of obstruction and inflammation on the prolapsed parts; and this dan-

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man, who had a belly hanging down from his navel to his ancles. A blue skin contained his bowels, but which seemed so thin, as to be liable every moment to burst. The weight was enormous, and the size appeared much larger than an ox's paunch. The unfortunate wretch was otherwise in good health, and crawled about, gaining his bread by begging."

ger

ger is proportioned to the narrowness of the opening, and to the bulk of the parts that have descended. The precursors of this alarming state are nausea and vomiting, succeeded by a tension of belly, acute pain, and general fever. As gangrene comes on, the tension of the parts decreases, the fever suffers an intermission, and the obstruction seems in a manner removed, as the fatal event ensues.

The descending parts, as already observed, consist of intestine, omentum, or both, and are often protruded in so great a quantity as to resemble an ox's paunch. The covering, or sac, is always a part of the peritonæum; and when the disease is of long standing, this sac becomes much thickened in its texture, and is composed of a number of layers.

From this account of the disease, it must appear that the removal of stricture is the chief and sole indication to be formed. This removal will be effected, either by a simple replacement of the protruded parts, or else by a division of the abdominal opening to effect the same purpose.

In order to succeed in the replacement of the protrusion, several circumstances require to be taken advantage of. The first is, the proper position or posture; for the lower parts of the belly should be elevated, and the thighs should be

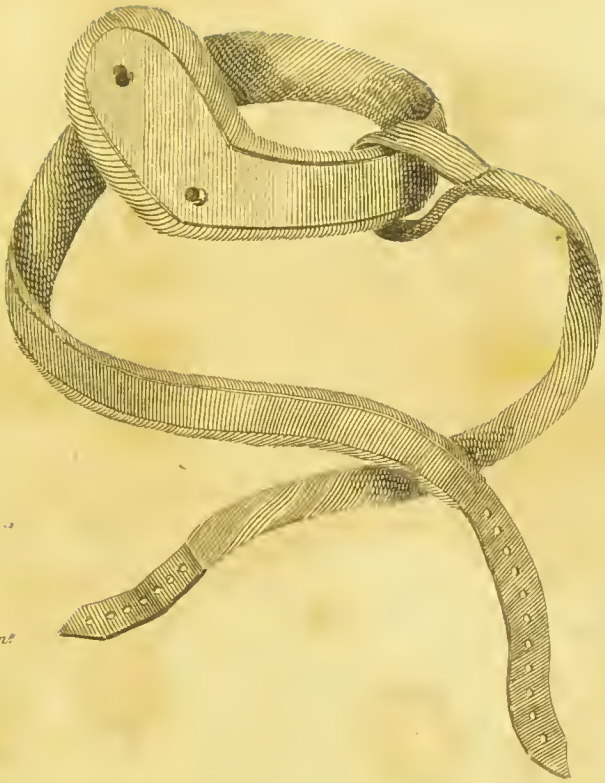
be raised higher than the trunk. The second circumstance to be profited by, is to induce a general relaxation of the system: this may be attempted by the various means of copious venesection; of injections of tobacco-smoke, which will take off the tension, as well as prove a laxative; and of opiates, particularly the digitalis, if the stomach will retain it, will also induce the same effects, and assist these means, while cold applications of saturnine ammoniated solution, ice and snow, to the part itself, are proper. The dashing of cold water on the legs and thighs, on difficult reduction, has also been recommended with great advantage. A practice must not be omitted here, which may be considered as a *dernier* resource, and cannot fail to be very effectual. This is filling the intestines with tepid water, by means of a particular instrument or pump, which, on being carried sufficiently far, seldom fails. Such are the various applications which are found at times necessary, to facilitate the reduction of this dangerous complaint. These contrary applications of heat and cold have been attended with the best consequences, because at the same time that it becomes necessary to enlarge the ring, it is expedient to contract and diminish the size of the gut, to the end that the reduction may be attended with less difficulty.

The

The last circumstance to be taken advantage of, is the mode of replacing the gut. This is accomplished by a proper application of pressure, grasping the swelling in divided portions, if large, with one hand, from the bottom upwards, while with the fingers of the other an attempt is made to push forwards its contents at the superior part of the tumor.

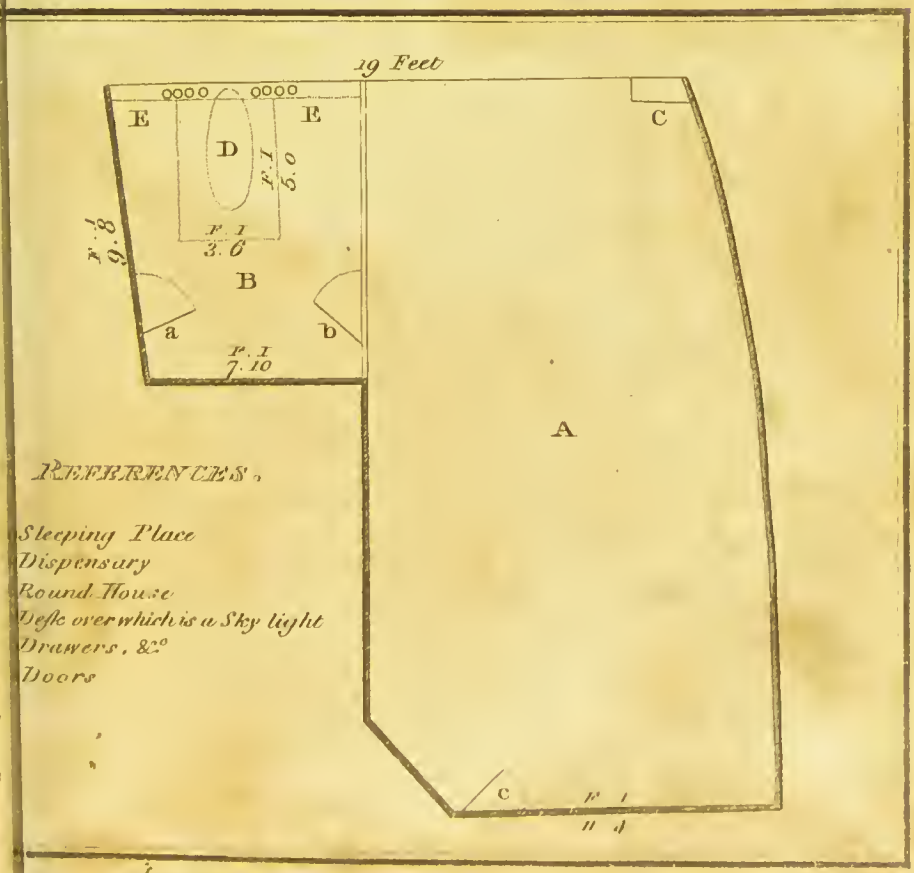
When the reduction succeeds, the hernial contents are to be retained by the assistance of a bandage, or truss, accurately fitted to it, and constantly worn: this will prevent a relapse. But should the reduction not succeed, so long as the disease remains in an indolent state, little else will be necessary, than the same assistance of a bandage, to prevent its increase, joined with an attention to the regular evacuation of the bowels.

The construction of bandages, for remedying the inconveniences of ruptures, is a point of the first importance. The principles necessary to be attended to in their construction, are, first, that a proper degree of pressure be made by them; and next, that this pressure be not too extensive, so as to act forcibly on the neighbouring blood-vessels which pass through the same opening. On this account much will depend, both on the pad or stuffing of the truss, and on the spring, as regulating,



Grice Delint

Plate 1 p. 63



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gulating, in some measure, the degree of pressure. To make it fit accurately, a proper measurement should always be made. This is the more necessary, as in small hernias the truss must be applied proportionally nearer to the abdominal ring than in large ones; and the pressure should never be made to take place on the pubes. The first application of a truss is generally attended by some uncomfortable sensations to the patient; but if the force should be unnecessarily great, the strength of the spring should be lessened. The next circumstance requisite in the truss is, that the pressure it makes should be permanent; and hence, though much has been said lately respecting the advantages which would arise from the use of patent elastic trusses, I am convinced that no truss of this kind will answer any beneficial purpose. The reasons are, that they do not press sufficiently on the aperture through which the gut passes, and that they have no fixed point of support, but, on the other hand, bear irregularly on the parts: their pressure, therefore, is always irregular and uncertain. The last circumstance to be attended to, is the form of the pad or cushion, which, to answer the intended purpose, should always possess a prominence, or slight elevation in the middle, while the sides are pretty much flattened, though not completely so.

Such is the best mode of relief that can be given,

given, in the treatment of this complaint; but when, from mismanagement on the part of the patient, or from other circumstances, inflammation and the other morbid symptoms arise, a division of parts become unavoidable, in order to remove the stricture, and to prevent the threatening consequences which are apt to ensue, on account of the protruding parts not being returned. The method of performing this operation is well known to every Surgeon, and should never be deferred for longer than three or four hours after the first symptoms indicating the necessity of it appear. The operation is to be conducted by a slow gradual incision of the parts; and when the stricture is taken off, the bowels are to be returned as quickly as possible into their situation. The success of this operation is always uncertain; and under the disadvantages that occur at sea, it must be considered as a very hopeless, though unavoidable, resource.

Next to the inguinal, the femoral is the most frequent species of hernia met with: its seat occasions the tumor to occupy the upper and anterior part of the thigh. It is distinguished by the same symptoms as the inguinal rupture; but they require here to be more accurately attended to, in order to mark more precisely the nature of the disease, the same situation being occupied by venereal bubo.

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In forming a truss for this species of hernia, the cushion or pad should be very narrow, and the spring strong, in order to take a firm hold on the opening, where the operation also is unavoidable. Here it requires the utmost caution, from the vicinity of the protruded parts to the large femoral vessels. This disease is considered as one of the particular obstacles to the performance of the duties of a sea life. Sailors, aware of this circumstance, when they are anxious to enter into the service, and are unfortunately subject to hernia, endeavour, by every manœuvre, to reduce it completely, and conceal the circumstance at the time of being examined. In this way the Inspecting Surgeon is often deceived by them; and it is proper he should be aware of the artifice. When these men have been for some time in the service, and become, as is too often the case, tired of it, this complaint is then brought forward as a pretext for their discharge. I am clearly of opinion, however, that slight cases of rupture are not an impediment to the performance of the duties of a sea life, with the exception of going aloft; and that a well-constructed truss, accurately fitted, will enable a seaman to execute whatever is to be done in the body of the ship, equally well, in the same way as we see daily ruptured persons on land follow the laborious employments of porters, paviours, draymen, &c.

SUPPRESSION OF URINE.

Among the various diseases to which seamen are subject, from their irregular habits on shore, none is more frequent than a suppression of urine. A suppression of urine depending upon its retention in the bladder from a variety of causes, is a complaint of a most alarming nature. The causes which produce this disease, originate sometimes from a paralytic affection of that viscus, or what most commonly occurs from acute inflammation in naval practice. The last of these is the most dangerous, and from the violence of pain, and extent of inflammation, requires the most active means to be employed. For the cure of this painful and distressing malady, the most powerful antiphlogistic course should here be employed, by venesection both general and topical, by leeches to the perinœum, opiates should be also largely exhibited, emollient injections thrown up, and the warm-bath should never be omitted. Probably there is no remedy more successful in this malady, than large doses of opium, in combination with calomel, even to the extent of from two to four grains of the former, and from six to ten of the latter, and to be repeated

repeated every six hours: scarcely is this last remedy necessary to be repeated above twice. Should repeated bleeding, injections, the warm-bath opiates and calomel, in combination, in large doses, as above recommended, and such like treatment prove useless, and every attempt to pass the catheter be of no effect; the only recourse is, provided the bladder be painfully distended, to make an opening into the bladder: the tension may be positively ascertained by a round tumor, or be felt just above the ossa pubis. Some suppressions originate in the kidnies and ureters, on which occasions the bladder is mostly empty, and its neck is much constricted.

Surgeons are divided in their opinions, with respect to the most proper part for penetrating the bladder; some are for doing it just above the symphysis pubis; others prefer passing the trocar just above, and a little to the left of the prostrate gland; the perforation is also advised to be made through the rectum. The higher operation is recommended by Mr. Sharp, in preference to that in perinœo, from the difficulty which, he says, there is in guiding the instrument into the bladder, and the danger of keeping the canula the necessary time in a part so much inflamed and thickened; but experience proves that the inconveniences are not so great in that respect as they are represented, and that the

urine passes off more freely by the perinœum than above the pubis; also that the canula may be lodged, occasionally taken out to be cleaned, and returned with no great difficulty, at the inferior orifice.

The different operations are thus performed: that above the ossa pubis by making an incision two inches long, through the teguments and muscles, and perforating the bladder with the trocar, about an inch, or rather more, above the symphysis. The perforation with the trocar has been made with equal safety in that part without previous incision. The canula is ordered to be not more than two inches in length; if longer it is likely to injure the bladder when colapsed: if shorter, it is difficult to keep it in the bladder: once in three days it will require to be cleaned; to do which, a stout probe should be passed through its hollow part, upon which the canula may be safely withdrawn and replaced. The canula is also to be fastened round the belly with tapes, passed through the rings at its verge.

To puncture the perinœum, which mode is preferred to the former, an incision is first made through the integuments, at a moderate distance from, and parallel with the seam, just beyond the bulb of the urethra, and the trocar is to be inserted rather to the left of, and a little above the prostrate gland; taking care to avoid wounding the

the urethra, and the parts which lie behind the neck of the bladder. Mr. Bell has contrived a certain method of discovering the immediate entrance of the trocar into the bladder, by forming a deep groove in that instrument, from its point up to the handle, through which the urine appears at the moment the instrument has entered the cavity. The canula is here also to be secured and removed as before.

Perforation may be easily performed through the rectum, but can hardly be done without either injury to the *vesiculæ seminales*, *vasa deferentia*, or urethra, all which lie at the back part of the neck of the bladder.

FRACTURES.

The accidents next to be considered, which occur at sea, and which are often also a consequence of gun-shot wounds, though no less common from other injuries, are fractures of the bones in different situations. With the treatment of these, every Surgeon entering the service should be well acquainted.

FRACTURES OF THE HEAD.

The most formidable injury of the bones is fracture of the head or skull. This injury is denoted by a train of convulsive and apoplectic symptoms; but unless these symptoms of fracture should be strongly marked, the operation of the trepan should never be performed, since it is merely to relieve actual compression of the brain that it is at all advisable. The performance of this operation at sea must be attended with many disadvantages; and if it is so fatal on shore as the records of most hospitals shew it to be, it cannot fail to be still more so on ship-board, without disparagement either to the abilities or treatment of the Surgeon. Every means of palliation should therefore be attempted, by both general and topical blood-letting, and by the use of purgatives and antimonial sudorifics. Before this last remedy is recurred to, if the patient can be removed to an hospital, the chance of recovery is certainly greater; not but at the same time, some instances have taken place of cures at sea in such desperate situations.

Wherever the operation of the trepan becomes unavoidable at sea, it will be proper to observe, that the trephine is the best instrument for performing it,

it, as its progress is slower, and it can be used with more caution in a situation where the steadiness of movement cannot be so much depended on as on land. The first step in all injuries of the head, is to know their extent, and this we can somewhat judge of by the appearance of the symptoms. The change induced by injuries on this part, consists either in a simple concussion of the brain, in compression of a particular part, or in inflammation; and these various states, according to the degree of the injury, are occasionally combined. The symptoms that discover mere concussion are, giddiness, stupefaction, and loss of sensibility; but these symptoms are only here of a [illegible]y nature, and soon disappear. The r[illegible]pression and fracture are denoted by th[illegible] permanent nat[illegible]e, and their being combined with many others; viz. dimness of sight, loss of voluntary motion, vomiting, stertor, convulsions, dilation of the pupils of the eyes, palsy, generally of the opposite side to that injured, involuntary evacuations, oppressed irregular pulse, and often epistaxis. It is only, then, from these symptoms, indicating an alarming injury to the brain, that an operation here is to be thought of; for so peculiar is the effect of these injuries, that even the slightest wounds of the head are at times attended with a fatal termination; while at other times, the texture of the brain itself has

been known to suffer considerably, and yet no bad symptom has arisen from it. Under no other circumstances, therefore, than when the above appearances shew themselves, and the palliative method already described proves abortive, should more active measures be attempted.

The first step to an operation here, is to trace fully the particular situation of the injury; and in case of gun-shot wounds, this is generally betrayed by the state of the external teguments. The extent of the injury will next be known by removing the teguments at the injured place; and for this purpose a simple incision is to be carried through them with a scalpel, for the whole depth. This part of the operation must be conducted with a degree of caution proper to the apparent yielding of the parts below; for where much pressure is used, the compression may, even by this part of the operation, be increased. When by this incision the state of the skull has been accurately examined, and a fracture or depression discovered, the operation then commences, by attempting the excision of the depressed portion, by the removal of which any extravasated matter will be discharged, and the morbid symptoms, of course, relieved. The operation is to be conducted in different ways according to the appearance of the injury. Thus if the fracture consists of several loose bones, or

sinal

Fig. 1
Fig. 2
Fig. 3
Fig. 4
Fig. 5
Fig. 6
Fig. 7
Fig. 8
Fig. 9

small portions of bone, these will be best removed by a pair of forceps. But where the fracture consists of one entire piece, or of several pieces, not detached, and beat in, with a view to raise them, and at the same time to avoid wounding the parts beneath, an opening must be first made through a sound part of the skull contiguous, and an instrument then introduced, for the special purpose of raising the fractured parts to the usual level.

This first part of the operation we have directed to be performed with the trephine, for the reasons stated above. In applying it, the situation of the sutures must always, if possible, be avoided. In working the trephine, the pressure applied should be gradual and slow; the instrument should occasionally be removed, to examine the depth as it passes; and as soon as the bone begins to vacillate, this instrument should be laid aside, and a piece of blunt pointed iron, or levator, introduced under each side of the bone. The perforation, or excision, will thus be completed. The perforation should never be less than an inch in diameter; the roughness of edge, and splints of bone, are to be carefully removed with the forceps or lenticular. The obstacles to the removal of the depression being thus withdrawn, the latter object must be accomplished according to the particular state of the fractured part. If

wedged

much of the success will depend on an early and vigorous application of the several remedies pointed out; and however trivial an injury of the head may at first appear, it ought always to be treated with every attention, and rather a doubtful opinion formed of its issue.

FRACTURES OF THE EXTREMITIES.

Fractures of the Extremities, as they occur at sea, are most frequently of the compound kind, and the cure of them is often rendered tedious by the scorbutic disposition prevalent in that situation, which prevents the callus from acquiring the proper consistence of bone. Where this takes place, the re-union is never complete till the patient is sent to the hospital, and a complete change in his condition produced. In other respects, a ship is not an inconvenient place for the cure of fractures, seeing that the injured part being once dressed, and the splints applied, the cot or hammock preserves the patient in a safe and easy posture, perhaps even preferable to what he would have enjoyed on shore. Before a patient, however, begins to walk, his removal to the hospital will be advantageous.

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Fig. 1

Fig. 2

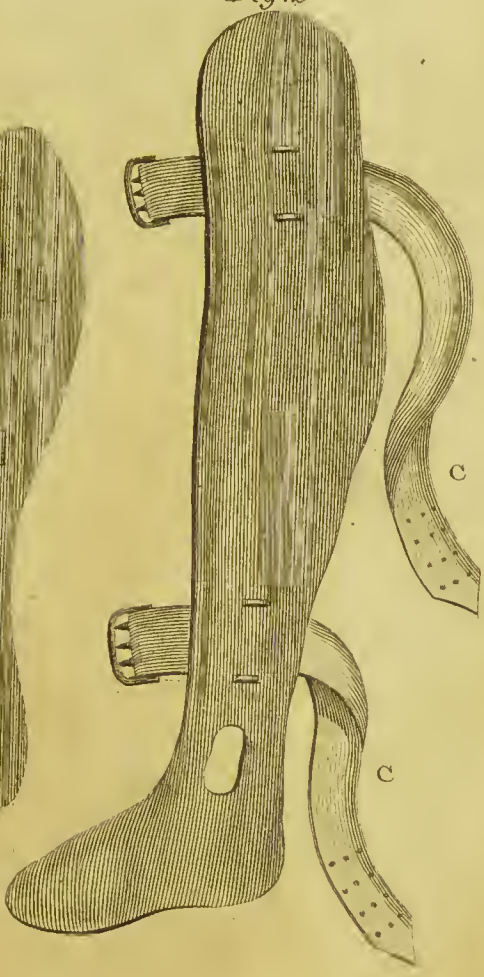


Fig. 3

Fig. 4

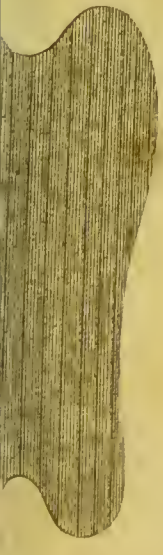
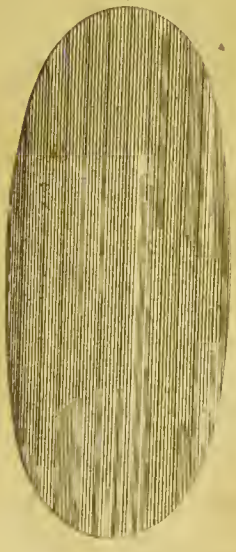


Fig. 5

Fig. 6



Neele sculp Strand.

Pub.d March 1.1806, by Rich.d Phillips, New Bridge Street

In the treatment of compound fracture, one great and leading step is the restraining of the hemorrhage. This is generally, in the most favourable situation, attended with difficulty, from the trouble of getting at the injured vessels; and requires often a considerable enlargement of the external wound. When this is accomplished, the next part of the operation, or the replacement of the member, will be more or less difficult, according to the extent of the injury. Where the bone is protruded, it should be observed, as a general rule, to save it as much as possible, on account of the length of time which its regeneration requires at sea. Some freedom may be used with the wound in order to accomplish this. When replaced, the success of the cure will depend on the after treatment. It is to be carefully preserved in its posture, by the proper use of splints above and below, while the effects of inflammation are to be rigorously obviated by the antiphlogistic course in the fullest manner.

LUXATIONS.

The injuries which produce fractures of the bones, occasionally induce the same accident to the joints, which they either lacerate, or merely displace.

displace. Where they are lacerated after reduction, they are brought to the same state as a compound fracture, and the same treatment will in every respect apply. The reduction of a simple luxation has every advantage at sea, from the number of assistants at hand, and the degree of force which can be readily applied to effect it. A surgeon, therefore, will find no difficulty, if he understands, as he ought to do, the principles on which the replacement should take place.

The first point in order to replace the displaced bone, is to have a firm position of the upper part of the joint, and a complete relaxation of the muscles which have any influence on its motion.

When this is done, the force required for the replacement will not be great, if the accident is recent; and that force should be employed in a slow and gradual manner, but to such a degree as not to be prevented from getting the bone into its place, by any impediment from part of a contiguous one.

Where luxation and fracture are combined, this accident becomes a serious one, and the first step to the cure must be the healing of the fracture, before the bones can be replaced. *This is a*

Mistake in Translation

AMPUTATION.

When, owing to any of the various accidents we have specified, the injury to one or other of the extremities has been so great that mortification begins to take place, or the circulation through the member cannot be preserved, in order to save the life of the patient, its removal becomes the only expedient left, and amputation must accordingly be performed. The improved state of surgery has rendered this a successful operation, as well at the great joints of the shoulder and the thigh, as in the course of the extremities. The great point at sea, in amputation, is to restrain the hemorrhage in the first instance, so that there may be no occasion afterwards to disturb the patient, or interrupt the cure by any accident of hemorrhage, a circumstance which is so apt to occur, from the scorbutic state of the fluids. Too much attention, therefore, cannot be paid to take up every vessel, however small, that presents itself; and on the time spent in this part of the operation much of its success will depend. Another circumstance no less important, is making the flap so large as to heal by the first intention. If these two rules are kept

in

in view, the success of amputation at sea will be equally great as in the hospital. As this operation is more frequent on ship-board than any other, the circumstances attending it should be more closely studied by the Naval Surgeon than most operations; at the same time, it may be remarked, that it is attended by a greater fatality than any other part of the business of surgery, as the inspection of the Naval Journals will shew.

The steps of the operation itself may be simply reduced to four leading ones. The first is the prevention of hemorrhage, which is done by a full command of the tourniquet in the first instance, and a minute application of the tenaculum afterwards, for the reasons just now assigned. The second important step in the operation, is the separation of the nerves from the other parts, which should take place as completely as the time will permit, in order to prevent the symptoms of pain and spasm, which are so unfavourable to the cure. The third important step, already noticed, is the proportion of the stump, which should be no more than completely to cover the denuded parts, and not so much as to lap over and endanger the formation of matter. The last circumstance regards the after treatment; and here the great object is to obviate inflammation

tion in the first instance, and afterwards to check any excess of discharge, which might reduce the constitution of the patient.

DROWNING.

In closing the account of Occasional Accidents at Sea, drowning must not be omitted, it being one which too frequently occurs. The symptoms which here mark the progress to death are as follows: the circulation becomes first more feeble and slow, and an anxiety is next felt about the præcordia, which the drowning person attempts to relieve by rising to the surface of the water, if it be in his power. He then discharges a quantity of air from his lungs, in place of which water is received; the oppression of the chest increases; and he still continues to expel air, and to take in water in return. In the space of a few minutes, in this struggle, during which convulsive spasms often arise, the organs of respiration cease entirely to act, and death ensues. The skin then becomes of a bluish cast, especially about the face and neck; the arteries soon cease to beat; the body sinks, and the scene is closed.

The means of restoring animation, where this

accident is early noticed, are numerous, and in no situation, however desperate, should they be omitted. They consist chiefly in the proper application of heat, and the irritation of some of the vital organs, particularly the brain, lungs, and *primæ viæ*.

The heat is to be applied in a gradual degree. The body, having been placed in a horizontal posture on a bed, or in another situation, is to be covered with warm dry cloths, occasionally renewed. A warm night-cap is to be put on the head, and bags of warm sand placed at the feet. Even friction may be conjoined with this application of heat; and the rubbing of the body with warm dry flannels at the same time, will have much influence. The heat must be gradually increased as the symptoms of animation return. Next to the application of heat, the re-establishment of respiration is an important step. The lungs should be immediately inflated, by inserting a pipe in one nostril, compressing the other, and shutting the mouth, when a person applying his mouth to the pipe, and blowing through it, will inflate the lungs. When these means seem to have some effect, volatile applications to the nostrils, temples, &c. to stimulate the brain, may next be attempted; besides which, irritation of the stomach, by vomits and other stimulants, has been employed; and also that of the intes-

tines

tines, by the injection of fumes of tobacco. As swallowing is denied, the former remedies must be introduced through a flexible tube into the organ. Injections of tobacco smoke are here particularly successful, as they give a general and diffusible irritation through the medium of the intestines.

All these remedies should be persevered in, success having attended their operation, and recovery taken place, even at the distance of three or four hours at least.

PART III.

NAVAL PHARMACOPŒIA;

OR,

DISPENSATORY.

HAVING now finished, as far as the limits of this Work will permit, a general detail of the principles and practice of Naval Medicine and Surgery, adapted to the various situations and circumstances of the British service, it remains, in the last place, to consider the particulars of the Medicine Chest, and to adopt the formulæ of prescription to the different forms of disease described in the preceding parts of the Work.

The great objects in Naval Practice, are, first, to carry no more medicines than what are wanted to sea; and, next, that these medicines should consist at the same time of the most active, cheap, and useful articles.

With this view, the following selections of articles will be found sufficient to answer every

purpose. The quantities are intended for the consumption of one year, for one hundred men; and according to the different rates of the vessels, and the greater number of men, the quantity must be augmented in proportion, at the discretion of the Surgeon.

The assortment of these articles we shall divide into two distinct parts, as applicable, first to the Medical, and, secondly, to the Surgical branch of the service.

I. MEDICAL

I. MEDICAL DIVISION.

THE medical part of the chest may be divided into articles of Diet and Pharmacy.

DIETETIC ARTICLES.

The articles of diet for the sick will fall properly to the charge of the Purser, but should consist of the following list of necessaries.

Barley, three hundred pounds.
Eggs, greased and put in salt, twenty dozen.
Extract of spruce, twelve pounds.
Lemon-juice, clarified, and preserved by adding to it a small proportion of ardent spirits, five gallons.
Raisins, fifty pounds.
Rice, two hundred pounds.
Coarse sugar, one hundred pounds.
Sago, twenty pounds.
Salep, ten pounds.
Portable soup, fifty pounds.
Tamarinds, ten pounds.
Best white wine, three hundred gallons.
Best red wine, one hundred gallons.

PHARMACEUTICAL ARTICLES.

Principal Articles.

Peruvian bark, ten pounds; but if the ship is destined for a hot climate, twenty pounds.
Calomel, two ounces and an half.
Emetic tartar, one ounce and an half.
Ipecacuanha, four ounces.
Opium, one ounce.
Purging salts, ten pounds.
Senna leaves, two pounds.

Secondary Articles.

Aloes, half an ounce.
Ammoniacum, two ounces.
Balsam of copaiva, three ounces.
Cantharides, one ounce.
Capsicum, three ounces.
Traumatic balsam, four ounces.
Camphor, three ounces.
Castor, one ounce and an half.
Chamomile flowers, or hops, two pounds.
Cinnamon, one ounce.
Prepared chalk, or oyster-shells, six ounces.
Conserve of roses, half a pound.
Cordial confection, two ounces.
Cathartic extract, half an ounce.
Extract of hemlock, three ounces.
Extract of logwood, one ounce.
Gentian, five ounces.

Ginger,

Ginger, three ounces.
Gum arabic, four ounces.
Gum guiacum, three ounces.
Powder of Jalap, one ounce and an half.
Laudanum, four ounces.
Lintseed, one pound.
Magnesia, six ounces.
Manna, eight ounces.
Whole mustard seed, half a pound.
Myrrh, four ounces.
Crude mercury, two ounces.
Corrosive sublimate, one ounce.
Nitre, eight ounces.
Oil of almonds, one pint.
Castor-oil, half a pint.
Lintseed-oil, three pints.
Essential oil of mint, one ounce.
Jamaica pepper, four ounces.
Blistering plaster, ten pounds.
Quassia, eight ounces.
Salt of hartshorn, two ounces.
Salt of steel, half an ounce.
Salt of wormwood, ten ounces.
Castile soap, half a pound.
Sarsaparilla, three pounds.
Serpentary, four ounces.
Spermaceti, four ounces.
Rectified spirit of wine, one pint.
Weak spirit of vitriol, half a pint.
Spirit of Mindererus, two pints; or the volatile salt and vinegar may be kept separately, and added occasionally.

Spirit

Spirit of turpentine, four ounces.
Dried squills, half an ounce.
Flowers of sulphur, one pound.
Golden sulphur of antimony, half an ounce.
Cream of tartar, one pound.
Vinegar, six pints.
White vitriol, six drams.
Wormwood, one pound.
Flowers of zinc, two drams.

As not any distilled waters, or tinctures, enter into the above list, it is intended that the former should be made by the Surgeon, with the essential oils, by blending a drop with an ounce of common water. The latter, or the tinctures, may be prepared on board with rum, or other spirits.

EXTEMPORANEOUS PRESCRIPTIONS.

HAVING thus arranged the supplies of the medicine chest, we are next to consider the various formulæ proper for the different diseases described in the preceding parts of the Work. The great point, in Naval Practice, is to study plainness and simplicity in every prescription that is found necessary. With this idea in view, we shall prosecute the subject in the same order in which it is already arranged.

CONTAGION.

Emetic.

℞. Pulv. ipecacuan. gr. xv.
Antimon. tartarisat. gr. ij. M. ft. emetic.

Anodyne Draught.

℞. Tinct. opii, gutt. xxx.
Vin. antimon. gutt. xx.
Aq. fontan. ℥ss. M. ft. haust.

SCURVY.

℞. Vini rubr. ℥ iij.
Succ. limon. ℥j.
Sacchar. alb. ʒij. M. ft. haust. tu in die sumend.

Potus Antiscorbuticus.*

℞. Aquæ puræ pullulum tepefactæ congios triginta; syrupi *melasses*, dicti libras sedecim pondere; extracti pini, uncias octo pondere; spumæ vel fæcis cerevisiæ, libras duas mensurâ. Misce et agita valide cum baculo deinde sinatur abire in fermentationem, ut fial cerevisia, deinde servetur in vase clauso. Ut diutius servari potest, prodere admiscere spiritus vini tenuis Gallici, vel qui *rum* dicitur, libras duas vel tres. Si infirma viscera adjicere juvabit, vel lupuli, vel summitatum absinthii, vel quassiæ, vel zinziberis, quantum satis sit. Hauriet æger libras duas quotidie.

Electuarium Eccoprotrium Antiscorbuticum.

℞. Pulv. jalap. ℥ss.
Pulpæ tamarind. ℥j.
Pulv. zinziber. ʒss.
Syrup *melasses*, dicti quant. satis sit.

Sumat. circita drachmam prorenata. Interdum profit adjicere crystallorum tartari drachmas duas.

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* *Potus Antiscorbuticus* of Dr. Blane.

VENEREAL DISEASE.

In Gonorrhœa.

Potus Communis.

Haureatur ad libitum, infusum lini, vel decoct. hordei cum gummi arabici sex in singulis libris.

Injectio Sedativa in Statu Acuto.

℞. G. opii, ʒss.
Aq. bullientis, ℥vj. M.

vel

℞. Tinct. opii, ʒss.
Aq. rosar. ℥viij. M.

℞. Theæ virid. ʒj.
Aq. fenent. ℥iiij. Ft. inject.

Injectio in Statu Benigno.

℞. Cerus. acetat. gr. xvj.
Aq. puræ, ℥viij. M.

℞. Zinc. vitriolat. gr. vj.
Aq. puræ, ℥iv. M.

℞. Aq. puræ, ℥iv.
Acid. muriat. gtt. iv. M. fiat inject.

In Gonorrhœa Benigna, or Gleet.

℞. Balsam. copaibæ, ʒj.
Tinct. lavend. compos. gutt. xxx. M.
Sumatur bis die.

Injectio.

℞. Alum. ʒss.
Aq. rosar. ʒviij, ft. inject.

Injectio Stimulans.

℞. Hydrarg. muriat. gr. j. ad gr. jss.
Aq. puræ, ʒvj. M. ft. Inject.

In Chancres.

In the commencement of chancre, the caustic will be applied with the happiest effects.

℞. Hydrar. muriat. mitis, ʒss.
Cons. rosar. q. satis sit fiat in pilulas, No. xxx.
Sumatur una quotidie, vel interdum dimidia ta die, ut cieatur ptyalismus modicus. Perstet æger in usu medicamenti hujus per dies octo postquam sanata ulcuscula.

Pilulæ Alter.

℞. Pil. Hydrarg. gr. v.
Antimon. tartarisat. gr. $\frac{1}{5}$. ft. pil.
Bis die sumend.

Bubo.

Bubo.

Mercurial unction, so as to pass through the affected gland, is the most certain remedy, without any topical application to the part.

When suppuration has taken place, it should be allowed to break of itself, or if a puncture is found necessary, in order to let out the contained matter, it ought to be small.

Lues, or Constitutional Disease.

A course of mercury, conducted in slight cases for six weeks, in others longer. During that time, the medicines should be brought to shew sensible effects on the constitution and disease. In mild cases three or four ounces of mercurial ointment, introduced by friction, will be found generally sufficient. But in obstinate cases from eight to ten ounces may be required, and introduced into the system at sixty or seventy rubbings, one drachm being used every night. This course will take up three months, or more.

Where unction is disliked, the following form may be used:

℞. Pil. hydrarg. gr. v. ft. pil.
Bis vel ter in die sumend.

℞. Hydrarg. calcinat.
Opii camphoræ, ā ʒs.
Syr. simp. q. s. ut ft. pil. ix.

℞. Hydrarg.

℞. Hydrarg. muriat. gr. iv.
Aq. vitæ, ʒvj.
Spir. lavend. comp. ʒij. M. ft. solut. cochlear. unum mane et nocte in aq. hordeat. sumend.

Treatment of Ulcers.

Where ulcerations remain that resist the action of mercury, the following medicines have been had recourse to, viz.

℞. Argenti nitrat. ʒj.
Aq. distillat. ʒss. M.

To be applied by means of a bit of lint fixed to the end of a probe, and dipt in it.

℞. Ammon. muria. ʒvj.
Acet.
Sp. vin. rectificat. ā ℔j. M. ft. solut.

℞. Ferri vitriol. calcinat.
Vel vitriolat. virid. ʒj.
Aq. distillat. ʒviij. M. ft. lotio.

℞. Acet. vin.
Sp. vin. rectificat. ā ʒiv.
Sp. vitriol, ʒij. M. ft. solut.

℞. Ærug. preparat. gr. vj.
Ammon. muriat. ʒss.
Aq. calcis recent. ʒviij.

℞. Zinci vitriolat. gr. x.
Aq. distillat. ʒvj. M. ft. lotio.

℞. Pulv.

℞. Pulv. rhubarbari.

A little to be sprinkled on the sore once or twice a-day, and if painful, to be mixed with opium; the proportion ʒj. to ʒj.

℞. Pulv. Columbæ.

The same.

℞. Ungent. hydrar. nitrat.

℞. Ungent. hydrar. ruber.

℞. Mercut. sublimat. corrosiv. ʒss.
Aq. calcis ℔ j. M. ft. solut.

℞. Succ. gastric. bovin.

To be applied on lint to the sore.

Diet Drinks.

The other remedies recommended in Venereal Complaints are Diet Drinks. Of the various ones had recourse to, we recommend the following as the cheapest, and equally active as any others.

Forms.

℞. Rad. sarsæ, ʒiij.
—— mezereon. ʒj.
Lig. guaic.
Cort. sassafras. ā ʒiij.
Aq. Bullient. ℔ v.
Maura horas octo dein cola.

A quart of th ʒ to be taken throughout the day.

℞. Rad. mezerei, ʒij.
—— sarsæ, ʒiij.
Aq. fontanæ, ℔iv.
Coque ad ℔ij. et cola.

The same quantity to be administered as before.

The nitrous and other acids, and the oxygenated muriate of potash, have been tried in venereal complaints. But though useful in the temporary alleviation, or removing of particular symptoms, their action will be found not sufficiently permanent to ensure a lasting cure. The Author was one of the first in the Metropolis to exhibit, when the practice was communicated by Mr. Scott in India, the nitric acid in this disease, and even to a very great extent. But the result of his experience is, that their good effects are merely temporary, and that they want that permanence or stability that attends the use of mercury. When a disease is induced from the action of mercury, which is sometimes the case, the use of the acids to remove that disease has been attended with the best effects. When they are administered in scorbutic and scrophulous habits, they may be well combined with a mercurial course, and their use may be alternated with the specific remedy. The forms in which I have been in the habits of exhibiting them are:

Nitrous Acid.

℞. Acid. Nitros. ʒj. ad ʒiij.
R. opii, gutt. xx. ad gutt. xl.
Aq. menth. ppt. ℔ij. ft. mist.

From a pint to a pint and a half may be given in the course of the day.

Citric

Citric Acid.

This acid to be exhibited in the same quantity and manner as recomended in scurvy.

Muriate of Potash.

℞. Sod. muriat. oxygenat. gr. iij. vel iv.
Solut. in aq. font. ℥ij. ft. haust.
Bis vel ter die sumend.

CATARRHAL AFFECTIONS.

Linctus.

℞. Conserv. rosæ, ℥ j.
Mucilag. gum. Arabic. ℥ ss.
Olei amygdalæ, ʒ ij.
Succ. limon. vel acid. vitriol. q. s. ad saporem conciliandum, M.

A little to be taken often. Occasionally there may be added to it either a drachm of nitre, or twenty drops of tincture of opium.

The best drink here is barley decoction, in which may be boiled an ounce of raisins; and towards the end two drachms of linseed, which will be a proportion sufficient to each pound. If there is much fever present, the saline mixture, and febrifuge pill, given thrice a-day, will be proper.

PULMONARY CONSUMPTION.

Where there is much fever, the saline mixture, and febrifuge pill, will be proper in small doses.

For the cough, the linctus will be most useful.

Against the diarrhœa, the logwood solution, and bitter decoction, with a proper dose of opium suited to the urgency of the symptoms, will be most suitable.

DRY BELLY-ACH.

Cathartic Anodyne Pills.

℞. Extract. colocynthid. compos. ʒss.
Opii, gr. iss.
Olei menthæ, gutt. j.

To be pounded into a mass, and divided into ten pills, to be taken for a dose. In a few hours, if the bowels are not rendered soluble, two ounces of the cathartic mixture may be given, or an ounce of castor-oil, and repeated according to the urgency of symptoms. Where there is frequent and violent vomiting, the saline mixture in a state of effervescence will be useful. The belly should be well rubbed with warm oil, the warm-bath, at a heat of 93, used for an hour at a time, or longer; and if the symptoms do not give way, injections of tobacco smoke may be employed.

LOCK-JAW, OR TETANUS.

℞. Tinctur. opii, gutt. xxx.
Aq. pur. ℥ss. M.

This draught to be repeated, and increased in quantity till it reach 200 drops for a dose.

Mercury to be applied in the form of unction, introduced chiefly through the affected parts, and thrown in as quickly as possible till salivation is induced.

The warm-bath to be employed in a heat of 96 or 98 degrees. Where arising from a wound or puncture, inflammation of the injured part is to be excited as quickly as possible, and the constitution attacked by tonic remedies, as wine and bark, in considerable quantities.

FISH POISON.

℞. Vitriol. alb. ʒj.

To be taken as an emetic as soon as the symptoms are discovered.

℞. Capsici coch. mens. ij.
Sal marin. coch. theat. ij.
Form. in past. et adde aq. bullient. ℔ss.
Ut liquor. gelid. colat adde acet. fort. ℔ ss. M.

A table spoonful a dose, every half hour.

Strong cordials, as brandy, Madeira, and other wines, are here highly useful.

YAWS.

℞. Pil. calomel. composit. ʒ ij.
Divid. in pil. No. 24.

One to be taken night and morning towards the conclusion of the disease, and their operation assisted by the use of the diet drinks enumerated under the secondary ulcers of lues venerea.

HEPATITIS.

℞. Unguent. hydrargyr. ʒ j.

To be rubbed in every night on the region of the liver, and the same regularly continued till a slight salivation is produced. Or the following pill:

℞. Calomel. gr. iij.
Extract gentian. q. s. ut ft. pil.

To be taken at bed-time, and the dose increased till the same effect is produced as above.

℞ Acid. nitros. fort. ʒ j.
Aq. font. ℔ j.
Syrup. saccharr. q. s. ft. mistur.

To be taken at different times in twenty-four hours, and gradually increased.

Abscess

Abscess pointing—to be opened by the trocar.

Treatment of the wound—dressing from its bottom, till parts heal up, and promoting the discharge by pressure, made with a roller applied round the body.

The convalescent state will be much assisted by the use of bitters of the simplest kind, as infusion of chamomile, or *carduus benedictus*.

PLAGUE.

The antimonial emetic in the first instance, and then the mercurial course begun, as already directed in fevers of warm climates.

OPHTHALMIA.

To be bathed with warm milk and water for the first eight or ten days, with a total exclusion from light. Saline purgatives to be exhibited in the mean time with a cool diet, and the occasional use of opium to abate pain. After the above period the simple wash is to be changed for one of a gentle sedative and astringent nature.

Where opacity forms, or the disease does not soon remit, blisters to produce a drain will be proper in different parts of the head, as behind the ears, nape of the neck, &c. and the eye itself is to be treated by stimulant applications, as a weak solution of lunar caustic, of the *aqua phagedenica*, or *alluminosa*. A celebrated Persian ointment, by Dr. Short, has been also found very successful, and is

composed of the following articles, white vitriol, tutty, and cinnabar. A collyrium, much used in the East Indies, may be also mentioned, composed of a tea spoonful of lime-juice to four table spoonfuls of water, or a tea spoonful of arrack to two table spoonfuls of water.

FEVERS.

The antimonial solution or powder in the first instance.

Common Cathartic Mixture.

℞. Fol. senn. ʒ vj.
Aq. fervent. ℔ vj.

To be macerated till cold: then a pound and a half of vitriolated natron or magnesia to be added. It is then to be strained, and the farther addition of ʒ viij. of tincture of senna to be made to it. Three ounces of this mixture are a dose; and its powers may be increased either by the addition of half an ounce of tamarinds or manna to each dose; or of half a grain of tartarised antimony, or ten grains of powdered jalap, at the discretion of the Surgeon.

Common Clyster.

℞. Aq. marinæ, tepid. ʒ xij.

Common Drink.

Barley decoction; to each pound of which may be added, according to circumstances, either half an ounce of the pulp of tamarinds, or a drachm of the chrystals of tartar,

tartar, or a scruple of nitre, or ten drops of the diluted vitriolic acid, or an ounce of lemon juice, or two scruples of gum arabic, or four ounces of wine, or a piece of toasted bread.

Emetic Wine.

℞. Antimon. tartar. ℈ ij.
Aq. fervent. ℥ ij.
Vin. Alb. ℥ viij.

The antimony is to be dissolved in water, and the wine to be added. Of this solution a drachm is to be taken every quarter of an hour, till vomiting is excited, or the bowels moved; after which half a drachm will be sufficient, at the distance of every six hours.

Febrifuge Pills.

℞. Pulv. antimonial. ʒ j.
Conserv. rosæ, q. s.

To be beaten together, and divided into twelve pills, one of which is to be taken every three or four hours.

Saline Mixture.

℞. Kali preparat. ʒ j.
Succ. lemon. vel. acet. vel acid. vitriol. q. s. ad. saturand. sal.
Aq. pur. ℥ vj.

The third part of this mixture to be taken thrice a-day. An addition may be made to it, according to circumstances, either of five grains of antimonial, or five drops of

of the diluted vitriolic acid, or a scruple of prepared chalk, or half an ounce of peppermint-water. Sometimes it is proper to exhibit this mixture immediately in the act of effervescence, when sickness and vomiting are severe. The magnesia will often be a proper substitute for the kali; and vinegar for the lemon-juice.

Diaphoretic Pill.

℞. Opii purific. gr. xij.
Antimon. tartar. gr. vj.
Conserv. rosæ, ʒiss.
Farin. glycirrhizæ vel tritic. q. s.

To be beaten together, and divided into twenty-four pills; one to be taken at bed time, and sometimes one or two in the course of the day.

Sedative Mixture.

℞. Mixtur. camphoræ, ℥vj.
Tinctur. opii, gutt. ix. M.

A third part to be taken twice a-day. It is occasionally proper to add to each dose of the mixture three drachms of the acetated ammonia, or thirty drops of the emetic wine.

Sedative Bolus.

℞. Confect. aromat. ℈j.
Opii purif. gr. ¼.
Castor. russic. gr. x.
Tinctur. opii, gutt. iv. M.

To be taken every six hours.

Convalescent

Convalescent Electuary.

℞. Ferri rubbigin. ʒss.
Piper. long. pulver. ʒi.
Theriacæ, vulgo molasses, ʒiv.

A tea-spoonful of this electuary to be taken twice a-day, drinking after it a cupful of the following infusion:

℞. Quassiæ, ʒ ij.
Cascarill. ʒj.
Aq. fervent. ℔ j.

To be infused six hours before being used. Also,

℞. Pulv. cort. Peruv.
Flor. chamœmel. ā ʒj.
Pulv. zinziber. ℈ij.
Syrup. q. s.

Of this electuary a drachm is to be given thrice a-day. It may be proper sometimes to add three drachms of the filings of steel, or two drachms of Virginia snake-root powder.

The practice with mercury, as in the continued fevers of warm climates, does not require any particular form of prescription different from what has been stated in the treatment of the lues venerea, as it is either exhibited in the simple form of calomel, or, in some cases, introduced by unction.

Intermittents.

The same practice is to be followed as at the commencement of continued fevers, when the bark is the proper remedy. It should be given in the same quantity every second, or third, or even every hour, during the intermission; or, instead of the powder, it would be proper often to give it in the form of a tincture made with rum, an ounce of which will be a dose. Where the bark fails, other prescriptions may be employed, as—

℞. Zinc. calcinat. ʒss.
Conserv. rosæ, q. s.

To be pounded together, and divided into fifteen pills, one of which is to be taken thrice a-day, according to the urgency of the disease, and the state of the stomach to receive it.

℞. Zinc. vitriolat. gr. xij.
Aq. pur. ʒiij.

A third part to be taken thrice a-day, increasing the dose according to circumstances.

℞. Tinctur. opii, gutt. xxv.

To be taken in the beginning of the hot fit, in a cupful of the ordinary drink. Occasionally, on the failure of the bark, the same treatment is attempted here as in continued fevers, by the use of mercury, in the form of calomel, or of the blue pill, which is given up as soon as salivation is produced. The bark is then repeated.

ACUTE

ACUTE RHEUMATISM.

Internal Remedies.

General antiphlogistic plan—Large and early bleedings necessary; saline purges; sudorifics, with antimonials, &c.

℞. Tart. emetic. vel ant. tartarizat. gr. j ss. ad ij.
Aqua font. ʒ viij.

A table spoonful every two hours.

℞. Camphor. gr. v.
Sal nitric. gr. xv.
Crem. tartar. ʒ j. M. fiat pulv.

℞. Pulv. Doveri, gr. x. ad xv.

℞. Pulv. Jacobi, gr. ter. ad vj.

One of either of these powders to be taken every three hours, drinking plentifully of barley water.

℞. Extract. opii, gr. j. ad gr. ij. ft. pil.

℞. Tinct. Guiac. volat. ʒ ij.
—— thebaic. gutt. xxx.
Aq. font. ʒ ij. ft. haust.

One of these to be taken in the evening to procure rest.

CHRONIC RHEUMATISM.

The same remedies as in the advanced stage of the acute, and also,

℞. Ol. terebinth. ʒ iij.
Syr. simplex, q. s. ut fiat haust.

℞. Cinnabar. antimon. ϑ j.
G. guaic. ʒ ss.
Pulv. glycirrh. gr. v.
Mell. q. s. ut fiat, bolus.

℞. Ethiops mineral, ϑ j.
Antim. crud. ϑ ss. M. fiat pulv.

℞. Pil. plumeri, gr, x.

℞. Hydrar. præcip. rubr. gr. j.
G. guiac. gr. xv.
Scammon. gr. iv.
Syr. q. s. ut pil. No. 2.
To be taken at bed-time.

℞. Calomel. gr. j.
For a dose every night.
(Mercurial unction to the part.)

℞. Calomel. gr. ij.
Opii, gr. j. ut fiot pil. j.
The same.

DYSEN-

DYSENTERY.

An emetic to be taken in the first instance, as directed in continued fevers; to be succeeded by the use of the common drink, having in it an ounce and a half of the cathartic salt, and from two grains of tartarised antimony to two pounds. Half a pint is to be drunk warm at first, and four ounces to be repeated every hour till the purging begins.

℞. Pulv. ipecacuhan. gr. xii.
Conserv. rosæ, q. s.

To be pounded together, and divided into twelve pills, one to be taken thrice a-day. But if there is much fever, it will be preferable to give thrice a-day a drachm of the emetic wine, in a cupful of the ordinary, drunk warmed.

℞. Pulv. ipecacuhan. gr. ij.
Pulv. opii, gr. j.
Nitri, gr. viij. M.

To be taken at bed time.

Emollient Clyster.

℞. Amyli, ʒss.
Aq. pur. ʒx.

To be boiled to a proper thickness for a clyster.

℞. Semin. lini. ʒvj.
Aq. pur. ʒxij.

To be boiled for a quarter of an hour, and the liquor then strained for a clyster.

Anodyne

Anodyne Clyster.

℞. Enem. emollient. ℥iv.
Tinctur. opii, gutt. xl.

To be mixed for a clyster.

Chronic Dysentery.

Cathartic Bolus.

℞. Pulv. rhei, gr. xv.
Calomel. gr. v.
Conserv. rosæ, q. s. fiat bolus.

To be taken in the morning, and repeated in a few days if necessary; or, in place of this prescription, two ounces of the common cathartic mixture may be given.

Logwood Decoction.

℞. Extract. ligni campech. ℥iss.
Tinctur. cinnamon. ℥j.

To be rubbed together, and five ounces of common water added. One ounce to be taken thrice a-day for a dose.

Bitter Decoction.

℞. Cort. Simaroubæ vel quassiæ, ℥j.
Aq. pur. ℔ iss.

To be boiled down to one pound. The whole to be taken in the course of a day, at three times; and an addition

tion may be made to each dose, according to the state of the symptoms, either of a scruple of prepared chalk, or of a grain of ipecacuhan, or of two drachms of tincture of cinnamon, or of from five to ten drops of laudanum.

In obstinate cases the practice with mercury is also attempted here, by rubbing in half a drachm of mercurial ointment every day upon the hypogastric region.

II. SURGICAL DIVISION.

The first part of this division to be noticed, is the set of instruments which are ordered by the Board of Sick and Hurt, and consist of the following arrangement.

A List of Instruments, according to the New Regulations, for a Surgeon in the Navy.

3 Amputation knives,
Do. saw, with spare blade,
Metacarpal saw, with do.
2 Catlins,
1 Pair artery forceps, with a slide,
24 Curved needles,
2 Tenaculums,
6 Field tourniquets,
1 Pair bone nippers,
1 Turnscrew,
3 Trephines,
1 Head-saw,
1 Lenticular,
1 Raspitory,
1 Pair forceps,
1 Scalpel,
1 Elevator,
1 Brush,
2 Trocars,
2 Silver catheters,
2 Elastic gum ditto,
2 Dozen bougies in a case,
6 Scalpels,
1 Head razor,
1 Key-tooth instrument,
1 Gum lancet,
1 Tooth punch,
2 Tooth

2 Tooth forceps,
6 Pewter syringes,
2 Seton needles in scales,
1 Pair curved scissars,
1 Curved bistory, with button-in handle,
1 Long probe,
1 Pair bullet forceps,
1 Scoop for extracting balls,
2 Probans,
2 Sets of common splints,
1 Set of japanned, for legs,
2 Pair ditto, for thighs,
12 Rollers,
2 Eighteen-tail bandages,
2 Pint pewter syringes,
1 Set pocket instruments,
4 Lancets in a case.

Assistant-Surgeons to furnish themselves with the undermentioned.

2 Amputation knives,
1 Ditto saw,
1 Metacarpal ditto, with spare blade,
1 Catlin,
12 Curved needles,
2 Tenaculums,
2 Tourniquets,
1 Pair bone nippers,
2 Trephines,
1 Head-saw,
1 Lenticular,
1 Raspitory,
1 Pair forceps,
1 Brush,
1 Elevator,
2 Trocars,
2 Silver catheters,
1 Elastic gum ditto,
6 Scalpels,
1 Key-tooth instrument,
3 Spare claws,
1 Gum lancet,
1 Tooth forceps curved,
1 Ditto straight,
1 Punch,
1 Seton needle,
1 Long probe,
1 Pair bullet forceps,
1 Set pocket instruments,
12 Lancets,
6 Pewter syringes.

LOCAL REMEDIES.

The local applications necessary for surgical use are not numerous. The following list will be sufficient for one year for one hundred men; and they can be increased in proportion to the rate of the vessel, as the necessity for them is more uncertain than for the medical remedies.

	lb.		lb.
Cerate	6	Blister plaster	6
Simple ointment	6	Powder of Spanish flies	1
Red precipitate	1	Extract of lead	4
Blue vitriol	0½	Sugar of lead	4

Sticking plaster spread on cloth, tow, lint, rags, &c. at the Surgeon's discretion.

DIVISION I. WOUNDS.

Gun-Shot Wounds.

The first step, the immediate restraint of hæmorrhage, by the application of the tourniquet, or pressure.

The next step, the full examination of the accident, in order to direct the proper treatment.

Restraint of the hæmorrhage is then to take place, by a permanent ligature applied by the needle or tenaculum.

The removal of extraneous bodies should then follow, if practicable, by means of the forceps, or cutting into the part, according to circumstances, and where minute bathing, with a syringe or elastic bottle, will be sufficient.

When these preliminary steps are gone through, the after management becomes the object, which consists in subduing inflammation, by venesection, emollient dressings to the part, and the use of anodynes internally.

When suppuration comes on, and the discharge is excessive, it must be checked by the bark and vitriolic acid, as:

℞. Aq. cort. aurant.
Cinn. spirit a ʒ iijss.
Aromat. ʒ j.
P. c. Peruv. ʒ ss.

Two table-spoonfuls every half hour, shaking the glass,

℞. P. c. Peruv. ℥ij.
Mucilag. g. Arab. ℥iij.
Tinct. p. c. Peruv.
Aq. cinn. a ℥iv.
Sp. vitriol. q. s. ad grat. aciditat. m.
The same.

Where a tendency to gangrene appears, wine and stimulants must be employed, in addition to the former.

The topical applications to the sore must correspond to these various states of it; thus, after the use of emollients, when suppuration has fully taken place, and the stage of incarnation has commenced, then gently astringent applications are most proper, as the saturnine and the other ointments, as:

℞. Ol. olivar. ℥jss.
Ceræ alba, ℥vj.
Spermacet. ℥ij.
Liquescant simul. leni igne dein. adde,
Lap. calamin. ℥ss. M. ft. ung.

Where gangrene unfortunately appears, the topical applications must consist of various antiseptics and stimulants, as:

℞. Cataplasm. effervescens
(Infusion of malt, thickened with oatmeal, and the addition of a spoonful of yeast.)

℞. Cataplasm. cerevisæ.
(Oatmeal, thickened with grounds of strong beer.)

℞. Sal.

℞. Sal. ammoniac. crud. ʒjss.
Acet. vini, ʒ ijss.
Aq. font. ʒvss. M. ft. solut.
With which the part is to be kept wet.

℞. P. c. Peruv. myrrh. in pulv. a ʒss. M.
To be sprinkled on the part.

With attention to these circumstances, the cure will regularly proceed; though, when the morbid symptoms of fever or spasm come, they will require likewise a special attention.

The first will consist in a proper attention to the relaxation of the part, in the use of topical venesection, with fomentations and poultices, and opiates internally, in such doses as to mitigate pain.

The second, or spasm, is chiefly to be obviated by a free use of opiates, and a complete division of the nerves of the wounded part, if only partially separated. Where these spasms arise to the height of tetanus, the same treatment must be pursued as directed for that disease in the Medical part of the Pharmacopœia.

Wind of a Ball.

No particular treatment is necessary here, unless the precaution of bleeding the patient, to prevent any after consequences.

Scorches.

The treatment here is the same as in other cases of burns.

The application of cold in different forms may be had recourse to, as plunging the part into cold water, or continued effusion upon it; cloths wetted in cold vinegar are also a common application. When the first effects are over, then astringents and emollients will be proper, as in the following forms:

℞. Aq. lithargyri acetat. ʒij.
Aq. distillat. ℔j.
Sp. vin. rectificat. ʒj. M.

℞. Sp. camphor. ʒij.
Aq. lithar. acetat. ʒj.
Aq. distillat. ℔j. M. fiat solut.

℞. Ol. lini.
Aq. veg. mineral.
Calcis, a ʒss. M. ft. embrocatio.

The emollients are:

℞. Ol. olivar. ʒjss.
Aq. calcis, ʒiij. M. ft. ung.

℞. Ol. lini.
Calcis, a ʒij. M. ft. ung.

During the cure, the constitutional treatment must be directed by the degree of inflammation; the antiphlogistic plan must be strictly adhered to; and pain obviated, by the occasional use of opiates.

Incised

Incised and Punctured Wounds.

The first step, to procure a proper contact of the sides, which are to be kept together by slips of adhesive plaster; or, if deep, by the twisted or interrupted sutures.

The sore is then to be covered with some emollient liniment, as:

℞. Ol. palmæ, vel
Ol. lini.
A little to be used frequently.

During the cure, a strict antiphlogistic treatment must be observed; and if excess of inflammation and pain arise, they are to be removed by the usual means of emollients rubbed on the part, as warm palm or lintseed oil, by bleeding with leeches applied near the edges of the wound, by opiates in large doses; and where these means prove ineffectual, by the removal of the ligatures themselves. Where this method of cure fails, and suppuration takes place in the wound, then the lodgement of matter must be prevented by getting access to its bottom, to be performed either by incision, where there is no danger of wounding the blood-vessels, by introducing a seton, or the use of a tent.

Should all these means become impracticable to prevent a lodgement of matter, then the cure must be attempted by pressure, and astringent injections, as:

℞. Aq. calcis, pro inject.

℞. Solut. alum. (℥j. to ℥vj.)

℞ Vin. rub.
Aq. font. a ℥ij. M. ft. inject.

DIVISION II. ULCERS.

Scorbutic Ulcers.

The general constitutional fault to be treated as directed in the Medical part. The local management of the sore corresponding to that, consists in the application of various antiseptics, as :

℞. Cataplasm. lupuli.

(A handful of hops boiled in ℔ij. of water to ℔j. and the decoction strained, and made into a poultice with oatmeal.)

℞. Cataplasm. dauci.

℞. P. c. Peruv.

To be sprinkled on the sore.

℞. Ung. Ægyptiac.

When the scorbutic disposition of the sore disappears, the cure is to be completed by the usual astringent applications, as in the case of a healing wound.

Scrophulous

Scrophulous Ulcers.

The constitutional treatment here depends on the use of tonics, particularly steel, and cold bathing, as:

℞. Pulv. cort. aurant. ʒss.
Pulv. zinziber. ʒj.
Pulv. winteran. ʒj.
Lim. martis, ϑj.
Syrup. aurant. q. s. ut ft. elect.

The size of a nutmeg, a dose.

℞. Limat. martis, gr. v.
Sacchar. alb.
Pulv. cinn. a gr. x. M. ft. pulv.

To be repeated occasionally.

℞. Tinct. martis ammon. ʒj.

Forty drops a dose, in a glass of water, twice a day.

The use of mercurials has been attempted in first stage, as:

℞. Calomel. ʒj.
Pulv. opii, ʒiij.
Syr. simpl. q. s. ft. pil. ix.

One every night.

The best local applications to the scrophulous ulcer are, cloths dipt in sea water; the poultice of the alga marina, or

or sea-weed; and various astringents, in the forms of ointments and watery dressings, as:

℞. Ol. olivar.
Mel. pespumat. a ℔ss.
Ceræ flav.
Emplast. lithargyri, a ℥iv. M. ft. ung.

℞. Sal. c. cervi, ʒss.
Ung. ceræ, ℥ss. M. ft. Ung.
To be kept from the air.

℞. Ung. hydrar. nitrat.
Cerat. spermacet. a ℥j. M. ft. ung.

℞. Aq. marin.
Cloths wet in it to be kept on the sore.

℞. Mellis rosæ.
Tinct. myrrh. a ʒij.
Aq. calcis, ℥jss. M.

℞. Foment. cicut.
(Fol. cicut. ℥iij. ad aq. ℔iij.)
Tinct. myrrh.
Aq. calcis, a ℥ij. M.
Pledgets to be dipped in it, and applied.

℞. Cerus. acetat. vel
Sacchar. saturn. ℥ss.
Acet. vini, ℥ij.
Aq. font. ℔ij. M. ft. solut.

Venereal

Venereal Ulcers.

Where appearing not as primary affection, and without any other constitutional symptoms, are to be treated locally with the lunar caustic, and the red precipitate and citrine ointments, as:

℞. Ceræ albæ, ʒij.
Adip. suillæ præparatæ, ʒvj.
Hydrar. nitrat. rubr. ʒj.

The wax and oil being melted together, and suffered to grow nearly cold, are to be well incorporated with the red nitrated quicksilver, previously levigated.

℞. Hydrar. muriat. súbtil. lævigat. gr. x.
Ovi unius vitel.
Adip. suil. præparat. ʒj.

The muriated quicksilver being first rubbed with the yolk of eggs, is to be incorporated with the lard.

Epidemic, or Ship and Hospital Ulcer.

The first step is, the separation of patients under this disease from the rest of the crew.

The first stage of this disease is to be treated on antiphlogistic principles, particularly bark, purging with calomel and jalep till the febrile symptoms are subdued.

The local applications in this stage should consist of poultices and other emollients. When the sore assumes its proper florid appearance, these applications should then yield to the nitrated mercury and verdigris.

℞. Hydrarg. purif. ʒj.
Acid. nitros. ʒij.
Adip. suill. præpar. ʒiv.
Ol. oliv. ʒxij.

The

The quicksilver being reduced to a calx, by the addition of the nitrous acid, is to be joined with the oil and lard, previously melted together, and suffered to become nearly cold.

℞. Æruginis præparati ʒj.
Unguenti elimi compositi ℔ ss.

The verdigris being mixed with a little oil, is to be gradually stirred into the elimis ointment, melted.

During the progress of the cure, an occasional opiate will be necessary, and also the use of the bark, where the habit seems to suffer *.

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* The following observations on the cure of the malignant, or ship uleer, has been communicated to me by Mr. George Turnbull, an ingenious Navy Surgeon.

"In the infectious malignant uleer, there is always great debility and irritability; in most cases, the glands above swell, and often suppurate: those, when early discovered, were often discussed by rubbing in mereurial ointment night and morning. The treatment that appeared to answer best was, to wash the edges, and all round the sore, with warm water, twice or thrice daily: also dressed aeeording to the quantity of diseharge, observing never to use the same sponge, or water, for any one else. The sore to be eleansed by a probe, armed with lint or tow; and after being well eleaned, the sore to be washed with lemon-juice, or *acetum nitrosum*, afterwards covered with dry lint; a compress, wet with lemon-juiee, and a proper bandage, over all. It often happens, that aeeording to the different habits, alternating the different stimulating applieations answer best, such as a solution of nitrate of silver, or blue vitriol, with the aeids as above; giving liberally of bark, with lemon-juiee, through the day; anodynes at bed-time. When the sore has aequired a elean healthy appearance, with granulations, washing them with the caustic solution, and afterwards dressing with the adhesive plaster, without any lint intervening, and a proper application of the bandage, are the most preferable remedies; and what adds greatly to their recovery on board ship, is dry cleaning the between-deeks and orlop, and having good elear fires carried into the different parts of the ship: where this last was strictly adhered to, few men were sent to the hospital, but soon recovered on board, keeping them apart.

DIVISION

DIVISION III. OCCASIONAL ACCIDENTS.

Aneurism.

Though this disease is not very frequent at sea, yet it may occasionally occur from over exertion, or in case of wounds.

In the situation of a seaman it is of much consequence, as the operation so frequently fails, that the cure could be conducted without it. This, however, is rarely the case; but as an inducement for practitioners in that situation to try the milder methods, before having recourse to the operation, we cannot do better than insert the particulars of a remarkable case of the cure of aneurism by pressure alone, as related in the thirty-fourth Number of the Medical and Physical Journal, by Dr. Adams, of Madeira.

This was a case of aneurism in the arm; and after describing the preceding history of the accident which gave rise to it, Dr. Adams proceeds:

"It now became necessary to take some decided step, and as the high operation was in some respects new, I could not but be anxious to have the assistance of a Surgeon who had recently left the busy scenes of improvement and practice. His Majesty's ship the Terpsichore at that time appearing in our roads, I called the Surgeon of it, and the only British Physician in the island, to my assistance; but had the misfortune to stand alone in my proposal of either performing the operation higher up in the arm, by a single ligature, or trying the effect of pressure

sure only *. Some other difficulties which occurred, determined me to proceed with my patient to the fleet before Cadiz, in order to procure the best assistance circumstances would permit.

" Finding he had felt so little inconvenience from pressure on a former occasion, I resolved to try the use of the tourniquet, keeping the fillet hollow by circular pieces of wood under it in different parts. It was hardly credible how little uneasiness this was attended with, though the pressure was so considerable as almost to stop all pulsation at the wrist, and even to occasion some œdema in the hand. This last circumstance made me anxious for some apparatus that might press more immediately upon the artery, and leave the rest of the limb as free as possible. On inquiry, the Surgeon of the frigate recollected a small inguinal truss, which was not in use. This was directed to be cut somewhat shorter, and to be bent to a smaller angle. The bulb was fixed about the middle of the humerus, immediately over the artery, which it pressed so close to the bone as to prevent all pulsation in the tumor. My patient, however, felt no uneasiness; and though on feeling the hand it was sensibly colder than the other, he perceived no numbness nor sense of cold. The truss was fixed on about four in the afternoon, and remained so

* The following is Mr. Home's description of the operation in the ham: Transaction of a Society, &c. p. 176.—Such is the operation in the true popliteal aneurism. In the case of the arm, if the parts are less complicated, yet the difficulty is more than increased, because there is no other sack than consolidated cellular membrane. I once saw a man expire under the operation for the popliteal aneurism, performed in the old way by Mr. Martin, in St. Thomas's Hospital.

till

till between nine and ten, when it was the custom of the cabin to retire to rest. The instrument was still left on; but as the arm rested on the bed on one side, and had the pressure of the clothes on the other, and also as there was no longer the roughness of the woollen coat to resist the leather, it was not probable the apparatus should long remain steady. About midnight I was awakened from my illusive expectations of success, to hear my patient, for the first time, complain of extreme pain. I found the instrument so far from pressing on the artery, that it seemed scarcely to make any pressure at all. The tumor was so perfectly solid, that there could be no doubt the blood had coagulated. There was no pain near the part pressed upon, nor any where higher in the limb than the aneurism, but immediately under and below it. If this arose from the pressure of the solid coagulum, which the patient described as hard as a brick-bat, the only remedy appeared by warm fomentations to relax the parts as much as possible. These were continued for an hour and a half before the pain entirely subsided, though there were frequent intermissions. After this the patient rested till day-light. In the morning he was somewhat feverish, with occasional but slight returns of pain, chiefly in the fore-arm. The whole arm was thickened from the part to which the pressure had been applied to the wrist, and two of the fingers were insensible. About nine he arose, and during the rest of the day had frequent returns of what he styled tearing and rending pains in the fore-arm and wrist. At night an obscure pulsation was perceived, the aneurismal tumor considerably increased, and the patient complained much of its weight.

"The following morning the tumor remained of the same size; but the skin was florid, transparent, and about

the centre purplish, intermixed with parts of a paler hue. I was now more alarmed than before. The fingers remaining insensible, and the pulse at the wrist very obscure, there was reason to believe that if the artery had recovered itself, it was only as low as the tumor: hence it was impossible to calculate what might be the consequence of the whole force of the heart and arteries urging the blood against a part which seemed already giving way.

"As, however, pressure had succeeded in obliterating part of the artery, there was every thing to hope from a more regular continuance of it. The thickening of the arm rendered it difficult to fix the truss in such a manner as to press sufficiently against the bone. A part higher up was therefore preferred, not more than two inches from the axilla, the truss was bent to a still smaller angle, and a number of pieces of wood, of a wedge shape, were prepared to place under the smaller end, in order to increase its pressure *ad libitum*. Under the thick end was placed a small square piece of wood, formed like that of the tourniquet. The smaller end pressing on the artery, a groove was made on the broader and upper part to receive the edge of the truss. That no time might be lost, the apparatus was applied as soon in the morning as my patient could be placed on the sofa, with his arm extended on a stool.

"After about an hour he complained of intense pain between the tumor and the part to which the pressure was applied. On examination I found, that in spite of all my endeavours the artery had recovered itself, and this pain seemed to arise either from the blood again distending the contracted part of the artery, or from the vessel itself attempting to dilate, notwithstanding the resistance of the truss

truss. This appeared the more certain, because a pulsation, not very obscure, could be felt below the pressure; and because, on the application of my finger immediately over the artery, the pain ceased. The apparatus was placed on a fresh and thicker wedge, at the small end of the truss; but in the space of half an hour the pain returned, and was easily relieved by elevating the narrow end of the truss so as to increase the pressure. As my patient found immediate relief from this, he expressed no longer any wish to have the truss removed. For about six hours the pain recurred at intervals, though in a slighter degree, and was always removed by the same means. The last paroxysm was whilst at dinner. After this he felt so great a drowsiness come over him, that it was difficult to keep awake, though he continued to eat. It seems at least probable, that the blood ceasing altogether to flow through the artery, produced, for a short time, a fulness in the vessels about the brain sufficient to occasion this heaviness. In the night he had pains in his hand and fore-arm, but slept tolerably well. In the morning the arm appeared thickened from the part pressed downwards. All the fingers and thumb were insensible, though warmer to the feel than those of the other hand, thickened, and of a florid complexion. A pain was felt alternately at the back of the hand, and the inside of the fore-arm; and the veins of both, whenever the pain occurred, were particularly turgid. Cold saturnine applications seemed to give some relief, but elevating the hand still more.

"The occasional exacerbations of pain continued without violence, and with less frequency for three days, after which they never returned. There was, however, as the patient expressed it, a fidgety kind of a feel about the hand for some days after; and it was curious to observe,

as the thickening* of the arm gradually subsided, so as to expose the more superficial veins, how much they were contracted in their diameter.

"I have described the pain, from the time the artery was closed, as seated altogether in the veins. It is extremely difficult to reason from a single instance, but a constant attention to every the most minute particular, may allow a larger latitude than the common course of practice. From this I should not scruple to say, that the pain arose from the valves of the veins being overstretched from a column of blood falling back suddenly upon them. Though it is well known that every part of the vascular system contracts its diameter in proportion to its contents, yet it is not less certain that the veins, besides that they are more numerous, do not possess this contractile power equal to the arteries. Hence the sudden deprivation of such a portion of blood as the humeral artery affords, must produce a deficiency first in the extreme branches of the veins; in consequence of which, the valves not being supported, a column of blood would be likely to fall so suddenly upon them as to produce intense pain, from the novelty and suddenness of the sensation. That this is really the case, I had a remarkable illustration in an aneurism of the temporal artery, which the polite attention of the medical gentlemen of the English Naval Hospital at Lisbon gave me an opportunity of examining.

"This case was of two years standing; and, from the obstinacy of the patient, no means had been used for his relief. The whole artery was dilated from the temples on each side over the cranium. The man was subject to

* I have called it thickening, because it had not the true leucophlegmatic or œdematous appearance, retaining no impression of the finger, and the colour being brighter.

violent

violent paroxysms of pain, which he felt not in the artery, but immediately above the nose where the veins are superficial. Without, however, insisting on this cause of the pain, the fact itself, strengthened by the observations of others, shows that there is frequently a kind of sympathy between arteries and their corresponding veins.

"In the first case related by Mr. Home, of popliteal aneurism, the femoral vein was found obliterated. In the second case, immediately after the operation, the superficial veins of the leg became turgid. In this operation the vein was included in the ligature, but those remaining were more than sufficient for whatever blood could be conveyed after the destruction of the artery. Morgassie furnishes instances much more striking than these: I need only refer you to XL. 23. Those of VIII. 11, and XLIII. 22, may be ascribed to a gradual enlargement in the artery, which produced a necessity of the same in the veins. Still, however, the exact correspondence is worthy remarking. But the most striking case is that related by Haller, in his Pathological Enquiries, XIX. Here the left carotid artery and jugular vein were both filled with a white, soft, and firm substance. In XX (note) we are referred to a case of aneurism of the aorta, in which the vena cava was filled with a fat medullary substance. These hints are, however, only thrown out for your future observation in cases that are so frequently offering themselves to you.

"That I might as little as possible interrupt the history of the symptoms from pressure, I have taken no notice of the tumor since the evening after the first application of the truss. The skin grew more transparent, and discovered under it a blacker appearance. In about two days the cuticle peeled off, and a black coagulum appeared covered with a thin pellicle, either rete mucosum, or

stratum of coagulable lymph. The smell was that of putrid animal matter. On the following day a large quantity of serum, tinged with red particles, was discharged; the coagulum was extremely putrid, and had all the appearance of mortified integuments. I was not, however, at all alarmed at this appearance. It required no superior sagacity in one who had traced the whole progress of the mischief, to see that the coagulated blood which had retained its life, and probably taken vessels to support that life, as long as it could be useful in closing the orifice of the artery, had now lost its life, and being too considerable to be absorbed, was to be thrown out like any other extraneous body*. For three days the aperture of the skin continued to enlarge, and at the lower edge had a sloughy appearance. In every other part it was easy to see that the putrid coagulum was totally distinct from the integuments. The appearance was, however, so formidable as to alarm the Surgeon of the frigate, and three days after, when we arrived at the fleet, and the case had become still more marked by a hollowness, without suppuration between the coagulum and integuments, the Surgeon-general could not be convinced that the whole was not mortification of the original parts. On the day following, the Surgeon-general of the Naval Hospital at Gibraltar, a gentleman who, by many years residence at

* See two cases in the Edinburgh Medical Essays abridged, vol. ii. p. 53, and 55. In the first of these, the above appearances having occurred in a more recent state, are very accurately described as a "polypus substance and blood in a fluid state." I might also remark, that in this case "the hand, during the cure, was *apt* to be œdematous;" and that this œdema appears, by the account, to have always subsided suddenly. It was therefore, probably, only a turgescence of the veins.

a hos-

a hospital in the metropolis, had enjoyed peculiar advantages, expressed his doubts. I mention this not out of disrespect to these gentlemen, but that the medical reader may have a just conception of the appearance; and, in case of a similar occurrence, may feel as little embarrassed as possible. It is but justice to add, that both these gentlemen had the candour to acknowledge themselves convinced, and to congratulate me on having saved my patient the danger of a painful and uncertain operation.

"The aperture continued to enlarge to a circle, the diameter of which could not be less than two inches, after which it became stationary. The discharge continued of the same complexion and quantity for three days; after which it became limpid, but for three days more in as great a quantity as ever. From that time it began to lessen, the putrid coagulum to be elevated, and gradually thrown out, the œdema in the arm to disappear, and the orifice to contract. By degrees a redness was discovered at the bottom, which looked like granulation, but was, in fact, only the muscles exposed by the removal of the coagulum. During this whole time no applications were used but dry lint; the sore never was painful nor troublesome after the serous discharge ceased. The fingers remained insensible and useless for several days; after which the joint nearest the hand acquired some motion; and in about three weeks after the successful application of pressure, all but the thumb and fore-finger had acquired motion. In the mean while the superficial veins began to enlarge, an obscure pulsation could be perceived at the wrist, and it was curious to observe a circumscribed line on each of the nails which divided the extreme part of a dusky hue from that nearer the root, which had the splendour and semi-transparency of living nails.

"It was full three weeks more before the fore-finger and thumb recovered themselves at all; even then the limb was weaker than the other, and colder to the touch. It was, however, equal to all the common purposes of life; and when we parted at the Tagus, no difficulty was found in managing the full decanter without the help of the other hand. This was on the 11th of July. By letter of his own writing, dated January, 1798, it appears, that even then the first joints of the thumb, fore-finger, and mid-finger had not acquired their original strength. 'These inconveniences,' he adds, 'are so trifling, that I should not have mentioned them had you not desired me to be very particular.' The sore had completely cicatrized before the conclusion of the month of July 1797."

HERNIA.

In the former part of this work we took occasion to mention, that this disease should by no means be considered an impediment for keeping men in the service, and that in most cases, by a well constructed truss, such patients may be fit for any part of the service, except going aloft. In a popular publication on this disease, the author has already stated to the public, that no less than one person in fifteen are subject to this complaint.

As the complement of the Navy of Great Britain consists of one hundred and twenty thousand men, including seamen and marines, the proportion exempted from the service by this complaint, will fall to be no less than eight thousand. When it is considered that there is rather

a defect

a defect of seamen than a superabundance for the service, it is certainly an object of the first consequence to government, that no one be rejected from entering into it who has a chance of being made useful. This opinion, which the author has hazarded, is confirmed by much experience in that line of practice; we do not mean, however, that any should be admitted but those whose hernia are reducible, and that none should be invalided whose maladies are in the same state. Much, however, will depend on the attention of the Surgeon, and it would be well if at every port a proper set of trusses were made, under the direction of the Surgeon himself, so as to be adapted to their particular patients. It is well known that the contract trusses are not fit for the purpose; and where nothing is left in the power of the Surgeon in this respect, on the present plan, he cannot be considered answerable for patients under this malady being unfit for duty.

The great point in every case of hernia at sea, is to keep the bowels in such a soluble state, that the pressure from within may be as slight as possible, and one of the simplest forms for this purpose is the following pill:

℞. Extract. colocynth.
Vitriolat. tartar. ā ʒ ij.
Sapon. ʒ j.
Syrup. simplex. q. s. M. fiat in massa, et divid. in pilula xxxvj.

Two or more of these pills may be taken when the body is costive.

In cases of difficult reduction, or when symptoms of strangulation have taken place, the following formulæ may be employed:

℞. Extract.

℞. Extract cathart. ʒ ss.
Calomel. gr. x.
Opii, gr. i. ss.
Fiat in pilula x.

Two of these to be taken every hour or two, with a cupful of the solution of Epsom salts, until a plentiful evacuation by stool takes place.

Or when that does not succeed, take

℞. Calomel. gr. vij. ad x.
Extract. opii, gr. v. ad vij.* ft. pil.

To be taken every six hours until the bowels are evacuated.

If, however, we should not succeed by the second dose in evacuating the intestines, and the symptoms of strangulation continue to increase, the operation must not be deferred.

As a great auxiliary to those medicines above described, and may be employed at the same time, are the following enemas, particularly when there is a sickness at the stomach which prevents the administration of the pills :

℞. Fol. nicotian. ʒ j.
Aq. font. ℔ j.
Coque min. x. fit inject.

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* I was induced to use this large dose of calomel and opium combined, in strangulated hernia, from experiencing its admirable effects in suppression of urine, as well as from the strong analogy existing between the two diseases, for both are attended with obstruction, excessive pain, inflammation, and spasm.

Or,

℞. Sapon. ʒj. ad j. ss.
Aq. tepid. ℔ j.

The latter injection, the author thinks, will answer much better than the tobacco clyster.

One of these clysters should be repeated every three or four hours, until the evacution be obtained, continuing at the same time the use of the above pills, if the stomach will bear them.

The next means we are to consider are external remedies; those may be divided into warm and cold applications.

The warm-bath, or blanket, as has been mentioned in a former part of this work, must not be forgot here; and whilst the patient is in the bath, venesection must be employed, and even *ad delegium.*

"Perhaps," observes the late Mr. Pott, "there is no disease affecting the human body, in which bleeding is found more eminently and immediately serviceable than in this, and which, therefore, if there are no particular circumstances in the constitution prohibiting it, ought never to be omitted." Pott's Works, vol. ii. p. 68, 8vo. edition.

Local Applications.

Fomenting the hernial tumor with hot water, or with a decoction of chamomile flowers, marsh-mallows, &c. has been usually recommended.

In my opinion, warm local applications have little or no effect, when applied in the common manner, in relaxing the tendinous expansion, and principally tend to rarify the confined air and increase distension. Cold applications ought

ought to have the preference, as solutions of crude sal ammoniac dissolved in vinegar or water, in this proportion :

℞. Sal. crud. ammonia, ℥ j. ss. ad ℥ ij.
Aq. font.
Acet. ā ℔ j. ft. mist.

When this mixture parts with its coolness, a fresh solution must be used. If those cold bathings do not succeed in twelve or more applications, they need not be repeated.—But as neutral salts, while in the act of solution, produce a remarkable degree of cold, it might be preferable to cover the parts first with the powder of crude sal ammoniac, and afterwards apply the cold water, than applying it in a previously dissolved state, as above recommended. This method has been attended with success, even at a period of the disease when it was imagined the operation for strangulated hernia had been indispensably necessary. An injection of cold water, and dashing it on the legs and thighs, in cases of difficult reduction, have also been recommended.

In addition to the cold local applications above advised, I would also recommend warm ones to be applied to the belly at the same time, and in the following manner :

Take the bladder of an ox, two-thirds full of warm water, and cover it with flannel, to prevent any moisture from touching the body of the patient. Apply the bladder, thus prepared, so as to cover the whole of the belly above the tumor, and at the same moment let the cold bathings before mentioned be made directly to the ruptured part. These contrary applications of heat and cold have

have been attended with the best consequences; because, at the same time that it becomes necessary to relax and enlarge the ring, or opening, through which the intestines pass, and which is formed by the tendons of the muscles of the belly, it is at the same time necessary to contract and diminish the size of the gut, that the reduction may be effected with less difficulty. This practice, although, I believe, not generally known, I have frequently succeeded in, when the separate applications of heat and cold have failed.

SUPPRESSION OF URINE.

If, on the application of the catheter, the urine cannot be drawn off from the bladder, owing to the impossibility of gaining its introduction into that viscus, the warm-bath, and at the same time large bleedings from the arm, should be employed. Indeed, in this complaint, as in the former, the same advice, in respect to general bleedings, is applicable; for it is in both a principal remedy, and in no disease is it either more indicated in appearances, or affords more relief in reality.

Taking away the blood locally, by covering the perineum with leeches, emollient and anodyne enemas should be frequently thrown up the rectum, and large doses of calomel and opium combined, as recommended in hernia, should also be administered.

Indeed this last medicine in suppression may be almost considered as a specific, for seldom is there occasion to exhibit a second dose.

To

To procure the fæcal discharge.

The Enema Purgans.

℞. Aq. hordeat. ℔ ss.
Sapon. ʒ vj. ad ℥ j. ft. enem.

To alleviate irritation, and remove spasm.

Anodyne Enema.

℞. Opii gutt. L. ad LXX.
Infus. lini, ℥ vj. ft. enem.

℞. Aq. hordeat. ℥ v.
Extr. opii, gr. iij. ft. enem.

FRACTURES.

There is no accident which more frequently occurs at sea, and attended with more serious consequences, than fractures, and more especially those of the head. We have given already a very succinct detail of the injuries to which this part of the body is subject, when treating on fractures; we are now to speak more fully on the practice, and take into consideration some cases of depression of the skull, which have been treated successfully without the application of the trephine.

Injuries

Injuries of the Head.

The too free and frequent application of the trephine to the cranium, in injuries of the head, as recommended in the early practice of Surgery, and so much inculcated by the members of the French Academy of Surgery, and by Mr. Pott, and many of our most distinguished Surgeons at that time, has since been reprobated by many respectable Surgeons, among those M. Dessault of Paris, Mr. Dease of Dublin, Mr. John Bell of Edinburgh, and by Mr. Abernethy, Assistant-surgeon to St. Bartholomew's Hospital.

In the last ingenious gentleman's remarks on injuries of the head, he relates several instances of fractures of the cranium, accompanied with depression, which terminated favourably, without the interposition of the operation of the trephine; and from some cases that have fallen under my own observation, I accord perfectly with the practice of this latter gentleman.

The mode of treatment observed in those cases was a liberal use of the lancet, by promoting a plentiful discharge by stool, and by inducing perspiration by saline and antimonial preparations; by the warm-bath, by a strict observation to low regimen, and by observing, in the fullest extent of the word, the antiphlogistic plan.

In those cases where considerable irritation of the brain has taken place, in addition to the above mode of treatment, much good has been experienced from a large blister applied to the nape of the neck, acting as a counter irritation.

The

The medicines which we would recommend in promoting discharge by stool, in injuries of the head, are,

℞. Sal. cathart. amar. ʒ j. ad j. ss.
Mannæ ʒ ss.
Aq. fervent. ℔ j.
Aq. menth. ppt. ft. ℔ ss. ft. mist.

A tea spoonful to be taken every half hour, till it operates.

Increased perspiration from the skin must be produced by the following diaphoretics:

℞. Tinctur. antimon. ʒ vj.
——— opii, ʒ iij. ft. tinct.

From fifteen to twenty drops of this medicine to be taken every two or three hours, until the effect is produced, in from three to four table spoonfuls of the following saline mixture:

℞. Aq. acet. ammon. ʒ viij.
Syrup. papaver. alb. ʒ j. ss. ft. mistur.

Or the increase of the insensible perspiration may be promoted by administering the following powder:

℞. Pulv. Dover. gr. x.
Theriac commun. q. s. ft. bolus.
One to be taken every four hours.

It is to be remarked here, that previous to the administration of antimonial and opiate diaphoretics, general bleeding,

bleeding, and evacuation by stool, has been first recommended.

The late ingenious Mr. Bromfield, Surgeon to St. George's Hospital, was the first that recommended Dover's powder in injuries of the head.

Concussion.

It has hitherto been considered as a desirable object, to point out any marks by which we might distinguish between compression and concussion of the brain; but we yet have to lament, that no such criteria have been laid down, so decided as to be invariably depended upon.

However, it is here necessary to describe the distinguishing marks of the two affections, so far as they have been given us by preceding writers. The symptoms arising from simple concussion, are vertigo, confusion, with pain of the head, *tinnitus aurium*, and dimness of sight. The pupils are here usually more contracted than in compression of the brain, the muscles of the limbs retain their natural state of tone, and respiration is performed with little or no stertor, though the pulse generally intermits in a very considerable degree, and the insensibility is much less in concussion, especially after a small time has elapsed.

But in cases of compression of the brain, circumstances very much the reverse of those just related, take place; the sensibility is much diminished in proportion to the degree of the injury: from this cause also the pupils are dilated, and the limbs relaxed; the respiration is attended with stertor; and the pulse, as far as my observation extends, is subject to much less intermission.

Treatment of Concussion.

The opinions that prevail among Surgeons respecting the treatment of concussion, are very different. Many late writers advise stimulants and cordials, in opposition to the preceding plan of cure, in cases of compression; such as wine, and volatile alkali, with blisters to the whole surface, of the head, except the injured part, and the occasional administration of antimonials and opiates.

We cannot, however, do better than detail here the opinion of that ingenious Surgeon, Mr. Abernethy, on the various modes of treatment in the different states of concussion.

"Nay, I think," observes that gentleman, "the whole train of symptoms following a concussion of the brain, may be properly divided into three stages. The first stage is the state of insensibility of the bodily powers, which immediately succeeds the accident. While it lasts, the patient scarcely feels any injury that may be inflicted on him. His breathing is difficult, but in general without stertor; his pulse intermitting, and his extremities cold. But such a state cannot last long; it goes off gradually, and is succeeded by another, which I consider the second stage of concussion. In this the pulse and respiration become better, and though not regularly performed, are sufficient to maintain life, and to diffuse warmth over the extreme parts of the body. The feeling of the patient is now so far restored, that he is sensible if his skin be pinched; but he lies stupid, and inattentive to slight external impressions. As the effects of concussion diminish, he becomes capable of replying to questions

questions put to him in a loud tone of voice, especially when they refer to his chief suffering at the time, as pain in the head, &c.; otherwise he answers incoherently, and as if his attention was occupied by something else. As long as the stupor remains, the inflammation of the brain seems to be moderate; but as soon as the former abate, the latter seldom fails to increase; and this constitutes the third stage, which is the most important of the series of effects proceeding from concussion.

"These several stages vary considerably in their degree and duration; but more or less of each will be found to take place in every instance where the brain has been violently shaken. Whether they bear any certain proportion to each other or not, I do not know. Indeed this will depend upon such a variety of circumstances in the constitution, the injury, and the after treatment, that it must be difficult to determine.

"With regard to the treatment of concussion, it would appear, that in the first stage very little can be done; and perhaps what little is done had better be omitted, as the brain and the nerves are probably insensible to any stimulants that can be employed. From a loose, and, I think, fallacious analogy between the insensibility in fainting, and that which occurs in concussion, the more powerful stimulants, such as wine, brandy, and volatile alkali, are commonly had recourse to, as soon as the patient can be got to swallow. The same reasoning which led to the employment of these remedies in the first stage, in order to recal sensibility, has given a kind of sanction to their repetition in the second, with a view to continue and increase it.

"But here the practice becomes more pernicious and less defensible. The circumstance of the brain having

so far recovered its powers as to carry on the animal functions in a degree sufficient to maintain life, is surely a strong argument that it will continue to do so, without the aid of means which probably tend to exhaust parts already weakened by the violent action they induce. And it seems probable, that these stimulating liquors will aggravate that inflammation which must sooner or later ensue. The access of it in the cases which I have related is sufficiently evident; and its cure is to be effected by the common methods. The great benefit of evacuations was in these cases very evident. Indeed it appears to me, that there is no complaint which requires such means to be more rigorously prosecuted than an inflammation of the brain and its membranes."—*Abernethy's Surgical and Physiological Essays.*

From the preceding remarks it evidently appears, that Mr. A. is by no means an advocate for employing stimulants in any of the three stages of concussion, from the difficulty that there appears in discovering whether or not in either of the stages there exists an evident inflammation of the brain.

However, from my own practice I can speak, that in the first stage, after having first produced an evacuation from the intestines, the stimulating plan has been employed with marked success. But it ought to be employed with great discrimination and circumspection.

When stimulating remedies are to be used, I would recommend the rubbing of the temples and behind the ears with volatile spirits.

It may be also necessary in some cases, to apply a blister to the head, and to administer one of the following cordial and volatile mixtures:

℞ Aq.

℞. Aq. menth. preparat. ʒ vj.
Tinct. zinzib.
Sp. lavend. comp, ā ʒ ss.
Syr. simp. ʒ j. ft. mist.—Or,

℞. Confect. aromat. ʒ ij.
Sp. sal. volat. ʒ iij.
Sp. lavend. compos. ʒ vi.
Syr. simp. ʒ j.
Aq. pur. ʒ vi. ft. mist.

Two table spoonfuls of either of these mixtures to be taken every two or three hours.

Cataplasms of mustard and vinegar must be applied to the soles of the feet. Wine and other cordials should also be administered, and the cure is to be completed with bark, steel, and other tonics.

Fractures of the Extremities.

In fractures of the extremities, the great object of the Surgeon at sea must be, to render the cure as complete as possible, and that no morbid consequences succeed, to prevent the full and perfect cure of the member. The different indications in the treatment should therefore be strictly attended to.

1. In the accurate replacement of the part, when the fracture is simple, by a proper relaxation of the muscles and extension of the member.

2. In retaining it in this state of replacement by the proper application of splints and a bandage.

3. In obviating the attending inflammation by venesection with leeches, or by the use of saturnine or saline solutions, selecting and changing them according as they agree with the habit of the patient. The best forms of which are:

℞. Ceruss. acetat. ℥ss.
Acet. vini, ℥ ij.
Aq. font. ℔ ij. M. ft. solut.

℞. Sal. ammon. ʒ ij.
Tinct. opii, ℥ ss.
Aq. font. font. ℥vi. M. ft. solut.

℞. Aq. ammon. acet. ℥ vi.
Aq. font. ℥ij. M. ft. solut.

℞. Litharg. levig. ℔ ss.
Acet. ℔ ij.
Sapon. ℥ iv.
Ol. oliv.
Ceræ flav. ā ℔ ss. M. s. u.

In the progress of the cure, should the callus prove too luxuriant, it is to be checked by astringents, or more completely by pressure.

The reunion of the parts being thus effected, the consequences of the injury are to be counteracted, which consist in weakness of the part, or general stiffness of the member. For the first, plaisters that give a firm support should be constantly worn, more or less stimulant, according to the circumstances of the case: as,

℞. Emplast. Roberant. vel defensiv.

Several

Several forms also of Dr. Kirtland will be found to answer well for this purpose. For the stiffness of the member the use of friction and emollients are indicated; as,

℞. Ol. palmæ; vel,

℞. Adep. anserin.

The warm-bath will be also useful, particularly in the form of steams, received on the part by means of the machine invented by Mr. ————, Navy Surgeon, delineated in the annals of the *Physical and Medical Journal.*

Compound Fractures.

The treatment of compound fractures, which are most frequent at sea, are more complicated than the former, and their principles of cure, in the first instance, consist in the restraint of hemorrhage, the removal of obstacles to the replacement of the parts, and then the proper replacement itself. The next step is to conduct the cure, which is always to be attempted, where possible, by the first intention, as directed in incised wounds; and the external injury, or sore, is to be first cased with gold-beater's skin, and a covering formed over it for the exclusion of the air, by pledgits dipped in the tinct. Benzoe composit. carefully, however, avoiding its application to the wound. But where matter forms so as to frustrate this plan of cure, the process must be hastened by fomentations and poultices in the usual way, and then a free vent given to its discharge. Should the discharge prove too great, then the usual tonic plan must be resorted to, and

cold astringent applications made to the seat of the injury, as the saturnine solutions, with a proportion of brandy. Where a tendency to gangrene shews itself, the antiseptic treatment, in a use of bark, wine, and acids, is then indicated.

The morbid consequences are here to be removed, as in simple fracture, on the cure taking place. A remarkable instance of compound fracture, narrated by Dr. Trotter, is worth inserting here, as it shows how much nature will often accomplish, under the most unfavourable circumstances.

"Daniel Leary, seaman, belonging to his Majesty's ship Circe, was, by the explosion of a great gun, in the act of reloading, thrown into the main chains, where he was discovered in the most melancholy plight that ever human being was exposed to. When called to examine him, both arms appeared to be carried away, with a fracture of the humerus, near the axilla of the right arm; his face, breast, and head, were scorched all over in the most shocking manner, and there seemed scarce any remains of life: in short, so hideous a spectacle has seldom appeared; and under such sufferings there were very slight hopes that any thing could be done for his relief.

"There is something, however, in the worst of evils, which induces the Surgeon to stand forward with zeal, in spite of the most discouraging circumstances; and in this instance it was rewarded with success. While the helpless patient continued in a swoon, the left hand was removed at the carpus. During this process, signs of returning sensation were evident; and before the arm was disposed of, he was aware of his situation. The arm presented a most awful prospect, and interested me much: for the rational state, which was now every moment increasing,

creasing, was an additional motive to persevere still farther, in hopes of saving him.

"He was, by this time, thoroughly sensible of his misery, and from the fracture being so near the scapula, he was told the necessity of losing the arm at the shoulder-joint. All the violence and obstinacy which seamen exhibit on some occasions, were shewn by this poor man, in opposition to my wishes; and every entreaty he could use was urged in the most earnest manner to save as much of the arm as possible; or if all would not do, he was content to die in the way he was.

"After using every argument with him in vain, he became still more unruly, and called for Captain Yorke to assist him, in setting forth his wishes. The inconsistency of operating below a fracture, and apparently in one of the worst cases, was kindly enforced by Captain Yorke, in addition to every thing I could say. But all was of no avail, and without hesitating any longer, it was determined that this pitiable object should be managed in the following manner, although it was transgressing some of the rules of surgery. On minute examination of the right humerus, the fracture appeared transverse, without any laceration, or much contusion, as far down as the elbow. The bones of the lower arm were shattered, and robbed of all their integuments and muscles, to within a hand's-breadth of the cubitus, where all appeared pretty sound; and there it was determined to operate.

"The shock communicated to the vessels had prevented any considerable degree of hemorrhage all this time; and very slight compression by tourniquet was used during the operation. The bones were found perfectly firm to the saw, and four blood-vessels required securing. The

rest

rest of the operation was soon finished, and the arm placed in the easiest position, with a moderate compression on the fracture of the upper arm by a tailed bandage. Two grains of opium were given him; cold embrocations were constantly applied to the arms, and watched and attended to with the greatest anxiety. His face and breast were moistened with oil; his eyes were closed, and the head enlarged prodigiously: but with all these evils, he continued rational in his conversation, and rejoiced that he had not been, what he called *stumped short* in the service.

"Every hour increased our hopes about him: Captain Yorke and the officers gave him every consolation by their frequent and attentive visits, which tended greatly to heighten his natural firmness of mind, and to banish every thought about his safety. Neither hemorrhage or any untoward symptom intervened: the left arm was looked at, and dressed the third day; was healing without suppuration, and scarcely any tension whatever. The other arm was considerably enlarged, from the fracture downwards; the outer dressings were therefore removed, and every thing left loose about it.

"Very little fever ensued, although he was in the most exquisite pain from the scorched state of his body. Wine and soup were given him in tolerable quantities for three days, when on our arrival at Spithead he was sent on shore to the hospital, where, by the active attention and humane care of Mr. Dods and the gentlemen under him, this man was preserved. In the course of two months both arms were completely healed, and the fracture united. In return for the loss of an eye, with his other calamities, he enjoys a pension of 20*l. per ann.* from the Chest of Chatham, with a book's birth in a ship of the line building.

"It

"It should not be unnoticed, that the regard which seamen have for each other in distress was strongly exemplified in this instance. No sooner had the maimed sailor appeared once more among his shipmates, than their zeal to compassionate his misery was set forth, in their usual way, to render him service. A subscription to the amount of twenty pounds and upwards was collected on board, in a few hours, to which a handsome addition was made by the officers."

LUXATION.

The most common seat of luxations at sea is the shoulder. The treatment here is more varied than in fracture, and the means must be regulated by the judgment of the Surgeon, from his knowledge of the situation and action of the muscles in the neighbourhood of the injury.

The same morbid consequences arise here as in case of fracture, and they are to be removed by the same means as mentioned under that head.

General Remarks on Fractures and Luxations.

However complete the cure of these different accidents we have treated may be, they become ever after, in case of any scorbutic affection, the first seat of the attack of this constitutional malady. Thus the callus of fractures which have been healed for twenty years, has been known to become softened, and the bones to open afresh, from this disposition of the system, before even it displayed itself

self in any other part. Hence all seamen, who have met with serious casualties of this kind, should be sent on a station where, from the short voyage, they may not be exposed to the danger of this scourge of a sea-life; and it would perhaps be greatly to the advantage of Government, if, in manning a fleet, the Medical Superintendants of each ship were to give in a report of the health of the crew, and of the diseases to which the individuals, from constitution and other circumstances, are separately liable. By this report, a proper distinction might be made. Men subject to pectoral complaints might be ordered, as we have directed, from a northern to a tropical station; young men, of a sanguine habit, so apt to fall victims to the yellow and other fevers of the tropical climates, might be kept in the colder latitudes; and others above a certain age, who are less liable to suffer from the tropical diseases, might be sent to that quarter. A judicious arrangement of this kind would annually save numbers to the service, and would only require the sanction of Government, and the proper attention of Medical men.

AMPUTATION.

Amputation is, unfortunately, we have already stated, the most frequent operation that falls to be performed by a Naval Surgeon. He is often under the necessity of having recourse to it in situations where his chance of success is very small indeed. As every attempt, however, should at all times be made to save the life of one who has ventured it for the service of his country, so the Surgeon should

should study to acquire an expertness in using the ligature and tenaculum, for on this will very frequently depend his being able to save the life of his patient.

The difficult situations in which amputation occurs are, when it is unavoidably performed at the larger joints, as the thigh and shoulder; and here, to the credit of the Navy Surgeons, several of the most hazardous operations of this kind have been performed, during the course of the late war, with astonishing success. One of these is recorded by Dr. Trotter, as transmitted by Mr. Bird, of his Majesty's ship Niger, and will serve as an example.

"April 26th.—Last night, Jean Morieton, a French officer, apparently a healthy vigorous man, about twenty-four years of age, was brought on board here, having received a wound with a musket-ball in the right shoulder. Upon examination, I found the ball had entered at the deltoid muscle, about two inches above its insertion, and passed out at the superior part of the scapula. I dilated the anterior wound, and readily discovered the neck of the os humeri to be fractured, and much splintered. I also was enabled to feel, with the first finger of my right hand, introduced at the wound, that its head was shattered into two or more pieces; a fracture of the scapula, where the ball passed out, was very evident; the clavicle was thrown so much upwards, as totally to prevent my being able to distinguish the first rib above it. Having ascertained the nature of the wound, I considered the operation as indispensable, but at the same time resolved to defer it till the first inflammation should subside, and then perform it; therefore nothing more was done the first night, than to cleanse the wounds, apply light dressings, and a proper bandage. An anodyne was given him,

him, which procured a tolerable night. On inspection this morning, the anterior wound was found to have bled considerably; the dressings were removed, but no artery could be discovered, to be secured. The wound was now dressed again as last night, and as there was a great deal of tension about the parts, a cataplasm was applied.—Repet. haust. anodyn. h. f.

"May 1st.—Has had tolerable rest these four nights past, with the use of anodynes; p. little quickened; b. bound; eats sago for dinner, with a little wine in it.—Bib. aq. hord. Wounds are dressed daily; have a very irregular lacerated appearance, and discharge copiously a highly fetid pus, of pretty good consistence.—Cont. cataplasm.

"May 3d.—As the inflammation was nearly, if not entirely gone, and a very copious discharge of pus continued, by which the patient was much debilitated, at the same time the weather so moderate, that the ship could be kept pretty steady, I determined to perform the operation to-day. When he was placed up on the table, which was in the gun-room, I endeavoured to make compression on the artery as it passes over the first rib, but without success; for not only the clavicle's being thrown upwards, but also some degree of tension, prevented its being effected, except very partially. I now attempted to make the compression in the axilla, but the head of the humerus being so much shattered, yielded to the least pressure; finding both fail, I felt myself very unpleasantly situated; but without the operation's being performed, it was evident that death was the certain consequence to the patient; therefore resolved to give him the chance.

"Having every thing prepared, I appointed a French Surgeon (who was Surgeon of the vessel the patient was wounded

wounded in) to make what compression he could upon the artery above the clavicle, which, as mentioned before, was only partial. Mr. Brown, Surgeon's mate of the Niger, stood at hand to give me the necessary instruments, apply ligatures, &c. The arm was now stretched out, and supported at nearly a right angle with the body, the shoulder projecting over the side of the table. A circular incision was now made through the skin and cellular substance, about the insertion of the deltoid muscle into the humerus; before proceeding farther, any divided blood-vessels were secured. The teguments retracted about three quarters of an inch. At the edge of the retracted teguments, on the inner and under parts of the arm, I applied the knife, and divided the muscles down to the bone, all round, except a portion in which the humeral artery was included: any large blood-vessels that were divided by this incision were secured. In the undivided portion of muscle, I distinctly felt the pulsation of the artery; upon which I placed the thumb of my left hand, and then finished the division of the muscles down to the bone: upon the artery being divided, a prodigious flow of blood followed. (Had the French Surgeon been of much service, he now forsook me, and removed the little compression he was making). I was very soon enabled to pass a ligature round it, and secured it, fortunately without the loss of so much blood as might have been expected, when we consider the size of the vessel, its vicinity to the heart, and almost a total want of compression, for my thumb effected only a partial one; as it was secured with the needle, the nerve was inevitably included in the ligature. (During the whole of the operation, Mr. Brown gave me very great assistance, but particularly at this part of it.) I now secured every blood-

vessel;

vessel; for even the smallest bled freely, after the larger were secured. With a strong round-edged scalpel, I made a perpendicular incision down to the bone, beginning at the lower part of the wound (which I had dilated upwards the first night he came on board), and terminating in the circular incision, about an inch and a half on the outside of the humeral artery, the bleeding vessels were immediately secured. Finding the deltoid muscle was in a gangrenous state, I made the upper flap about one third smaller than the lower, and proceeded to separate the flaps from the os humeri; which being effected, the arm came away, not leaving half aninch of the humerus attached to its head. I now saw that the head of the humerus was shivered into various pieces of different sizes. After cutting the capsular ligament all round, it was with some difficulty I removed the first piece; the others came away easily, accompanied with a part of the glenoid cavity. I found two pieces of the scapula detached, which were dissected out; one of them was the greatest part of the spine: the removal of all these, together with the gangrened flesh, protracted the operation to a great length of time, which the patient bore with astonishing fortitude. In the course of the operation, eight or ten vessels were secured, some with the needle, others with the tenaculum. After cleansing the surface of the flaps, and applying a second ligature upon the humeral artery, about one quarter of an inch above the first, they were brought in contact, and adhesive straps applied to retain them together, leaving an aperture in the most depending part, sufficient to discharge the remaining very small pieces of bone, which could not be removed by the knife. After the straps, pledgits of cerate, or lint, were applied, and a compress of lint and tow,

tow, with a flannel roller over all.—An anodyne of tinct. opii, gt. 40. was given immediately, and repeated at bed-time.

" May 5th.—The posterior wound was dressed to-day; discharge copious; the patient complains of almost constant nausea; he has also some spasmodic affections, frequently; no stool since the operation; in the afternoon he complained of pain in the lower belly, and inability to pass urine, with frequent tendency: the pulse quickened; skin hot; great thirst; with some head-ach.—Warm fomentations were applied to the belly, and he soon passed his urine freely.—Hab. enem. commun.—A saline draught was given him every second or third hour, and an anodyne at night.—Dressings have not yet been removed from the stump.

" May 7th.—Soon after the operation of the injection, most of the unfavourable symptoms were considerably relieved; and, by continuing the saline mixture, went entirely off. This morning there was a recurrence of the pyrexeal symptoms. I removed the dressings from the stump, and put fresh applications in their place; soon after which the febrile symptoms subsided. The flaps were found to have adhered nowhere; their surface have a very sloughy appearance. Adhesive straps were applied to the superior part of the flaps, so as to keep them slightly in contact: the inferior part was lightly dressed. As suppuration had already begun to take place, over all a compress of flannel roller was applied. The posterior wound looks well; and discharges a laudable pus; it is dressed daily. Sago, with a little wine, is given him for dinner: drinks water, with a small quantity of Oporto wine in it.—Omitt. haust. anodyn.

" May 9th.—About an inch and a half of the lower

part of the upper flap is in a gangrenous state; discharge very copious; extremely fetid, but of pretty good consistence; p. calm. and weak; skin moist; b. rather costive; rests but indifferently without an anodyne.—Repet. haust. anodyn. h. s. ut antea. Eats a little mutton for dinner; and in the course of twenty-four hours drinks nearly a bottle of Oporto wine, in water: he is dressed now twice a-day.

"May 12th.—Discharge continues very great and fetid; p. regular; several of the ligatures have fallen off; his diet and drink, as mentioned last report, continued. Omitt. haust. anodyn.

"May 14th.—Part of the superior flap, that was in a gangrened state, fell off to-day: the lower flap looks extremely well, and granulates kindly; discharge continues copious; all the ligatures, except that of the humeral artery, have been removed. The patient has great spirits; general health good; and sleeps very well, without the use of an anodyne.

"May 16th.—Granulations are shooting out from every part of both flaps; discharges a well-digested pus, not so profuse, and little fetor. This morning I accompanied him to Forton Hospital, where he was left under the care of Mr. David Patterson, Surgeon there.

"Aug. 17th.—He was discharged perfectly well, and returned to France."

In a warm climate, particularly the West-India station, the great difficulty lies in the after treatment; and from the first moment of the operation two circumstances are to be guarded against—tetanic symptoms, and excessive discharge.

The treatment of the first has been directed in the cases of recent wounds, to which we refer; and the second

cond also has been fully considered under the same head. All that it is necessary to observe here is, that without waiting the approach of any of these symptoms, a treatment should be adopted on the tropical stations, from the first, to counteract them, by a strict attention to prevent irritation, in taking up the vessels during the operation, so as to include no nerves or other sensible parts that may excite spasm; and next, to preserve a vigour of constitution, or prevent a state of atony ensuing, by the immediate use of bark, wine, and acids.

CASUALTIES.

Though in the former part of the work the plan of treatment for such accidents has been fully considered, still it may not be improper here to introduce the directions formed by the Humane Society, which the Surgeon can compare with what has been already said, and frame from the whole such a set of directions as will apply to the particular cases which are apt to fall under his care.

Resuscitative Process.

1. Convey carefully the body, with the head raised, to the nearest receiving house.

2. Strip dry the body; clean the mouth and nostrils.

The Drowned.

3. Young children to be put between two persons in a warm bed.

4. An adult.—Lay the body on a bed, and in cold weather near the fire. In summer expose the body to the rays of the sun; and in warm seasons air should be freely admitted.

5. The body to be gently rubbed with flannel sprinkled with spirits, or flour of mustard. The proper substance to be sprinkled on flannels, and a heated warming-pan covered may be slightly moved over the back and spine.—Salt never to be employed.

6. The breast to be fomented with hot spirits. Hot bricks or tiles covered, &c. to be applied to the soles of the feet and palms of the hands.—If no signs of life appear, the body to be put into the warm-bath.

7. To restore breathing.—Introduce the pipe of a bellows (when no apparatus is at hand) into one nostril; the other and the mouth being closed, inflate te lungs till the breast be a little raised; the nostrils must then be let free. Repeat this process till life appears.

8. Tobacco-smoke is to be thrown gently into the fundament, with a proper instrument, or the bowl of a pipe, covered so as to defend the mouth of the assistant.

9. Electricity to be early employed, either by the medical assistants, or other judicious practitioners.

Intense Cold.

Rub the body with snow, ice, or cold water. Restore warmth by slow degrees; and, after some time, if there be

be no appearance of life, the resuscitative process for the drowned must be employed.

Suspension by the Cord.

1. A few ounces of blood may be taken from the jugular vein; cupping-glasses applied to the head and neck; leeches also on the temples.

2. The other methods of treatment the same as recommended for the apparently drowned.

Suffocation by Noxious Vapours.

Cold water to be repeatedly thrown upon the face, &c. drying the body by intervals. If the body feels cold, employ gradual warmth, and the plans for restoring the drowned.

Intoxication.

The body to be laid on a bed, with the head a little raised; the neckcloth, &c. removed.

Obtain immediately medical assistance, as the modes of treatment must be varied according to the circumstances of the patient.

General Observations.

1. On signs of returning life, a tea-spoonful of warm water may be given; and if swallowing be returned, warm

wine, or diluted brandy. The patients must be put into a warm bed, and, if disposed to sleep, they will generally awake perfectly restored.

2. The plans of resuscitation are to be used for three or four hours. It is an absurd and vulgar opinion to suppose persons irrecoverable, because life does not soon make its appearance.

3. Bleeding never to be employed, unless by the direction of the medical assistants.

Hydrocele.

Under the head of casualties, as being often the effect of accidental injury, it would be improper to omit some observations on the subject of hydrocele, and particularly, also, as it is so apt to occur to seamen in hot climates. It is one of the most common affections on the West-India station, and is occasioned by the excessive heat of the climate, and by the natural tendency of these parts, both from their dependent situation and loose texture, to a relaxed state. To this may be joined, the excess in venery to which, where opportunity offers, seamen in the tropical regions are uncommonly prone, and the consequences which result from an over exertion in this indulgence. Indeed, so common is the affection to the inhabitants themselves, that few escape it; and amongst the negroes it often occurs to a most enormous bulk, though it differs there from the common hydrocele of the Europeans, and is more a thickening of the scrotal teguments, than a collection within their coat. An interesting communication on this subject will be found in the Memoirs

Memoirs of the Medical Society, in a letter addressed to Sir Joseph Banks.

The treatment of hydrocele with seamen, while on the West India station, requires to be palliative, as the return to Europe will prove itself the means of cure. The water should, however, never be allowed to collect in any quantity, and as soon as the puncture can be easily made, it should be performed. The palliation by puncture is a matter of more importance, perhaps, than the cure, as by this complaint seamen are so much disabled from the performance of their duty. The best preventative means will consist in *cold-bathing* and *suspension*. It should be the duty of the Surgeon, therefore, in every ship on the West India Station, to enjoin the practice of bathing the parts either with cold water, or a weak solution of sal ammoniac, every morning, to counteract the effects of the climate, and the other causes which tend to bring on the disease. Along with this, every man should be provided with a proper suspensory, which should be regularly worn as a matter of precaution; and the Surgeon should accordingly lay in a proper number for supplying the crew, when ordered on this station. This can be attended with little expence, and they may be even made by the men themselves.

NEW LIST OF MEDICINES.

In the Introduction to the Pharmacopœia, we introduced the approved list of medicines as recommended by Dr. Blane. This was a correction of the original supplies which were laid in from Apothecaries' Hall, under the direction of the Physician of Greenwich Hospital. This plan was certainly not in favour of the service, though the suggestions of the Surgeon, in making up the supplies, were generally attended to by the Greenwich Superintendant. Dr. Blane, with much modesty and good sense, in his publication pointed out the defects of this plan of proceeding; and by giving in his work, which we have so often noticed, a list of what his own experience and observation taught him to be necessary in the worst of climates, shewed the propriety of the alteration now made. Government therefore ordered the supplies themselves from Apothecaries' Hall, and they are as follows; the list of which may be compared with the former one of Dr. Blane, and by the comparison, it will be seen what is due to Dr. Blane for his attention to this part of the business. The merit of Dr. Trotter, to whom the Navy also owes so much, has been confined more to directing the dietetic than the pharmaceutical lists.

The following is the copy of an invoice of medicines sent from Apothecaries' Hall, London, necessary for the service of His Majesty's ships, and the quantity is regulated in proportion to the size of the vessel and the number of the men, at the discretion of the Surgeon; but as a useful regulation for him, he has only to consult the previous table of Dr. Blane, where the quantity of each article for one hundred men is exactly ascertained.

Acid.

	lb	ʒ
Acid. vitriol. dilut.		
Adip. suill. pp.		
Aloes socotr.		
Antimon. tartariz.		
Aq. litharg. acetat.		
Arg. nitrat.		
Calomel.		
Camphor		
Cera flav.		
Cerat. lap. calam.		
Cerus. acetat.		
Cinchon. pulv.		
——— flav.		
Conf. aromat.		
Crem. tart. pulv.		
Cret. pp.		
Cuprum. vitriol.		
Digital. purp. pulv.		
Emp. cantharid.		
—— ceræ c.		
—— Litharg.		
——— comp.		
——— cum hydr.		
Extr. colocy. c.		
Flor. chamæm.		
—— Sulph.		
Gum. ammon. gutt.		
—— Arab.		
—— guaiac.		
Hydr. muriat.		
—— nitrat. rub.		
Jalap. pulv.		
Ipecac. pulv.		
Kali pp.		
Liquor. vol. c. c.		
Magnes. alb.		
——— vitriol.		
Mel. acetat.		
Natron. vitriol.		
Nitr. purif.		
Ol. lini		
— menth. piper		
— olivar.		
— ricin.		
— terebinth.		
Opium		
Pulv. antimonialis		
—— ipecac. c.		
Quassiæ ras.		
Res flav.		
Rhabarb pulv.		
Sal. vol. c. c.		
Sem. lini.		
Senna		
Sperm. cet.		
Sp. lavend. c.		
Tinct. ferr. muriat.		
—— scillæ		
Ung. Ceræ.		
—— hydrarg. fort.		
——— nitrat.		
—— resin. flav.		
Zinc. vitriol.		
Zinziber. pulv.		

Bolus knife	No.
Tile	No.
Bottles (half pint)	doz.
Corks for ditto	gro.
Gallypots in sorts	doz.
Pewter measure (1 oz.)	No.
Mortar & pestle (metal)	No.
Ditto (Wedgewood)	No.
Needles, com.	chart.
Scales and weights (small)	box
Spatula (plaister)	No.
Ditto (pot)	No.
Funnel	No.
Spong.	
Bottles, pots, &c.	
Tow	
Chest	
Box	
Porterage	

CONCLU-

CONCLUSION.

Medical Constitution of the British Navy.

To the observations already offered on the history of Naval Medicine, it will be proper here to add, that the Medical arrangements are now made by Government according to the nature and extent of the service, and the Medical assistance is directed accordingly. The service is performed either by single ships, squadrons, or fleets. In a single ship, the appointments already stated are sufficient; but when a squadron or fleet is ordered to sea, in addition to the Medical appointments of the different ships, a Superintending Physician forms also part of the establishment. The introduction of Physicians to the fleet has not been of long duration, but is an improvement of great advantage, as a person in this situation is supposed to conjoin the experience of the Surgeon, with certain superior professional acquirements, that enable him to take a lead. The business of the Physician is to receive the reports of the Surgeon, and to consult with him in cases of difficulty and danger. To the physicians of the fleet the greatest praise is due, and most of the new arrangements have been proposed through their means.

Besides, in cases of operations at sea, the presence of the Physician gives a confidence to the Surgeon to attempt every means of relief with his co-operation, however

ever hazardous or intricate the case may be. Another improvement that deserves much praise is, the better regulation and increased number of the Naval Hospitals, into which the seamen are received on coming into port, and from whence they are not dismissed, whatever their complaint be, but with the full approbation of their own Surgeon, who inspects their situation before receiving them again on board.

To these observations we shall here subjoin a list of the present establishment of the British Navy, in point of numbers and medical rank.

LIST OF NAVY SURGEONS.

*** Surgeons rank with Captains in the Army, and Lieutenants in the Navy.*

1754
C. Nicholai
1755
Thomas Meadows
1756
Robert Millington
John Watt
Nicolas Davison
1757
W. Harvey
William Gray (1)
Patrick Renny
Hugh Weeks
Anthony Gregg
John Robinson
1758
Tho. Jones
1760
Robt. Apsley
Alex. Young, M.D.
Henry Watson
1761
A. Coytmore
John Haliburton
1762
Robt. Tindall
F. Thompson
1766
T. Watson
1770
J. L. M'Clellan
Ephraim Graebke
John Henry Darre
1771
John Smith (1)
William Wallis
Samuel Jones
Thomas Mein
William Perry (1)
Thomas Andrews
1772
Ch. Armstrong
1773
Hen. Maybee
1774
Wm. Elamire
Matthew Ball
James Anderson
1775
James Malcolm
1776
James Rymer
Charles Thompson
Richard Wood
Nicholas Flood
A. Anderson (1)
Benj. Drawwater

Robert

Robert Melville
James Rose
James Thomas
Robert Forrest
Charles Boydard
John Birtwhistle
John Black (1)
Richard Temple
Robert Huet
Alex. Johnston (1)
William Stuart
David Wardrobe
Thomas Romney
Frederick Horn
Edward Drury
Thomas Jameson (1)
James M'Nair
John Burt
Samuel Hill
John Bennet
Thomas Elliott
James Ballentyne
John Russel
Charles Wallace (1)
Thomas Seeds
Joseph Williamson
John Lamb
Peter Sandilands
Joseph Anderson

1778

Wm. Servant
Thomas Coleman
Edward Inglis
Stebbing Revans
James Hunter
George Stavert
John Mill
William Bragg
George Smyth, M.D.
Wm. Henderson (1)
Robert Munro
John Eedy
John Dack
Nathaniel Belly
Joseph Skinner
Alex. Johnston (2)
Tho. Cunningham
Benjamin Young
Jn. C. Weeks, M.D.
William Renwick
Jeremiah Smithers
Alexander Pentland
Thomas Stokoe
John Grant (1)
Wm. Smellie Forbes
Francis Forster
William Long
John Heath
John Jeffcot, M.D.
James Higgins

1779

James Shaw
Samuel Hall
Simon Holliday
Andrew Stephens
Thomas Caird
Rd. Charles Connell
Joseph Fleming
John Thomson
James Crockatt
John Curry
Alexander Stewart
Mathias Felix
Alex. Love Gordon
Richard Clarke, M.D.
Thomas Haines
John Wardrope
David Lewis
Peter Smith
Peter Kennedy
Wm. Turnbull (1)
Robt. Newberry, M.D.
Edw. Harwood

1780

Cuthbert Eden
G. Bouch. Worgan
Thomas Graham
Joseph Stephenson
George Crockatt
John Burosse
David Wake Bell
Richard Kent, M.D.
Thomas Williams
John Minchin
P. B. Aickin
James Callam
John Barker
William Dykar
Robert Wesley

1781

James Coull
Thomas Armstrong
Thoms. Raind
Jn. Cobham Mules
Wm. Perry (2)
James Sawers
James Nutt
David Gardner
Wm. Walker (1)
Wm. M'Curdy
Leonard Gillespie
Edward Lloyd
Richard Daston
George Hewetson
Stephen Jones
John Griffin
James Thomson
Richard Lloyd
Stewart Carnegy
William Piercy
Joseph Beale
James Glegg
William Nesbitt

Rt. Anderson (1)

1782

James Scott
Dd. Paterson (1)
William Cockburn
James Wilkes
Dd. Paterson (2)
James Magennis
Alexander Grant
John Bell (1)
James Farquhar
Wm. Turnbull (2)
Thomas Morgan
John Gibson (1)
Charles M'Glasham
Jn. Agnew
Richard Burke
William Jardine
Andrew Wilson
Ebenezer Nicholson
George M'Callum
William Jackson (1)
Jonathan Young
George Sibbald
John Duncan
Wm. Hartshorn

1783

Alex. Duncan
Alexander Whitson
James Long
Charles Cudlip
John Aitken
Thomas Kein

1784

Henry Semple
John Allen

1786

Isaac Wilson

1787

John Clifford

1789

W. Walker (2)

1790

G. Rutherford
Henry Sempell
Robert Paterson
Lauren. Anderson
George Bass
Alexander Bennet
Robert Dunn
Alex. Anderson (2)
William Pattison
John Gardner
Robert Dunkin
George Michie
Lauren. M'Intosh
Alexan. Hamilton
George Kellie
William Nepecker
Alexander Proctor
David Aitken
Robert Kirkwood
James Turkington
Henry Feary
Joseph Parker
Thomas Kenning
James Parker
Corn. Reynolds
Archibald Menzies
Thomas Stewart

1791

John Buchan
John Wade
John Leggat
John Bayne

1792

James Little

1793

Th. Eshelby
William Fuller
Robert Greer
John Spence
John Stoddart
George Turnbull
J. N. Taylor
Stephenson Eden
James Godfrey
John Moffat (1)
Samuel Parker
John Weymouth
William Fleming
Montgom. Boswell
J. Nicholl
J. W. Frankland
Wm. M'Donald
Luke Nagle
John Dulhunty
James Bell
James Dunn
Thomas Smith
John Drew, M.D.
Thomas Johnston
Rose Herring
John Reardon
William Cather
Robert Ridgeway
Robert Carruthers
William Halfpenny
Peter Blair
John Cole
Duncan M'Arthur
W. J. Warner
Peter Cullen
James Dalziel
John S. Hasted
Andrew Douglas
William Hill
Tho. Watherstone
John Lind
Wm. Beatty
Thomas Bowen

1794

Willian Porter, M.D.
Charles Taylor
James Hogg
Robert Mulberry

Gabriel

Gabriel Johnstone
Thomas Heron
William Smith
J. A. Gorfie
Thomas Gray
Tim. Maller
Tho. Munt
Matthew Kent
P. J. Neibuhr
George Vance
Robert Mogg
Tho. Robertson
Tho. Billinghurst
Hugh Hughes
Wm. Carpenter
Alexander Reid
Thomas Parker
Thomas Hooper
John Anderson (1)
Wm. B. Smith
Richard Lettice
James Milligan
Josiah Bridge
John Jones
Robert Allan (1)
James Young (2)
William Mitchell
Francis Connin
Bryan O'Biern, M.D.
John Grant (2)
Michael Jefferson
James Veitch
John Crawford
James Corbett
Alexander Milne
Thomas Major
John Malone
Wm. Shoveller
M. M'Cormick
Robt. Anderson (3)
William Goodson
Evan Edwards

1795

Jacob Mountgarret
R. H. Beaumont
Wm. Mustard
James Gregory
B. W. Edwards
Henry Osborne
Rd. Hardwicke
Edward Russel
T. Galloway (1)
Robert Innes
Rt. Cinnamond
George Brown
Robert Smith
Dd. Fleming
Allen Cornfoot
F. M. Chivers
Nath. Poulden
George Bellamy
James Fullarton
Humph. Mills
Wm. Jamieson
Ralph Cumming, M.D.
John Brigges
John Fisher
John M'Rae
Joseph Kennedy, M.D.
Edw. Bromley
W. M'Mullan
John Sterling
Gregory Odell
Rt. Sabine
Bryan M'Laughlan
John Adamson
Wade Shields
Wm. Gregory
B. Kiernan
Richard Harris
James R. Pringle
James Fletcher
John Morgan
Wm. Halsted
S. R. Palmer
Rd. Daley
Rd. Murray
Charles Thomas
Wm. Forbes
Daniel Campbell
George Rowe
Thomas Willes
D. M'Carty

1796

John Boone
Thomas Marryat
Samuel Smith
George Stark
George Campbell
Patrick Mullane
Wm. Llewellyn
Wm. Lawe
John Richardson
R. Lindsay
B. F. Outram
W. F. Wye
J. A. Madden
Wm. Carey
Wm. Robertson
Alex. Whyte
Wm. Gray (2)
John Martin
Drummond Murray
Thomas Hurst
Matt. Motherwell
David Rowlands
Robert Hood
John Cunningham
Peter Goldsmith
Scott Brown

Wm.

Wm. M'Laughlin
William Finnimore
And. Smith
Duncan Campbell
R. Williams
John Wilson (1)
John Bury
John Macansh
John Shaw
James Cairns
Edward Boys
Richard Thompson
Henry Parkin
Robert Castelman
Robert M'Cormick
Arthur Ahmuty
Thomas Downey
Rt. Welsh
John Inman
James Billing
Ralph Cuthbertson
Morgan Finucane
John Jackson
Thomas Quin
And. Elphinstone, M.D.
John Rolloff
George Smith
Henry Ewing
Wm. Gladstone

1797

M. Johnstone
George M'Grath
Charles Dubois
John Hallett
George Roddam
Richard Cray
Wm. Hamilton
R. P. Williams
Rd. Dobson

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The above list is the whole of the British Authors who have written on Naval Medicine and Surgery; and if we compare the small number of them with the list of individuals who fill the appointments in the Navy, we must be struck with the little turn for observation, which has been displayed by such a large body of practitioners.

But it may be justly observed, that great praise is due to the authors who have already treated on Marine Medicine, and the most beneficial consequences have attended their suggestions, both to the health and regulation of the Navy in every respect. The paucity of the above list will be a strong argument in favour of what we have formerly hinted, that each Surgeon should be obliged, as a matter of duty, to lodge, along with his journal, a detail of such practical observations as have occurred to him worthy of notice in his routine of service. How much, indeed, would it tend to the benefit of Marine Practice, if the Surgeon of every vessel in a fleet were to communicate annually his observations to the Physician, and these being collected, that a publication should be brought forward every year, under the title of Annals of Marine Medicine, particularly appropriated for the use and information of the Service,

DIRECTIONS FOR PLACING PLATES.

PLATE I.—To face p. 62.

Admiral Markham's Sick Birth.

Explanation.

A Sleeping place.
B Dispensary.
C Round-house.
D Desk, over which is a sky-light.
E E Drawers, &c.
a b c Doors.

PLATE II.—To face p. 67.

This is an ingenious contrivance of Messrs. R. Moser and Co of Frith-street, Soho. It is recommended by its easy application, and the directions how to use it are as follow :

Take the tin-box lamp, and light with a wax taper, and the best oil, as a common chamber lamp, which place in the lower chamber of the earthen retort. Place the earthen cup over the burner, in which put some sand, and place the glass cup in it ; pour in the vinegar, or any other liquid with which you wish to impregnate the air, and cover the whole with the earthen top. In chambers the tin tube conveys the smoke or smell of the oil up the chimney ; on board ships they are slung in cases.

N. B. By removing the cups and the top, any thing may be kept warm in sick-rooms, by placing a tin vessel over the lamp.

PLATE III.—To face p. 289.

This is a delineation of a truss for femoral hernia, which has never appeared before in any work. The attention is here to be particularly directed to the form of the cushion, which is different from that of other trusses.

PLATE

PLATE IV.—To face p. 249.

This plate shews the application of the tourniquet to the arm and thigh, with a view of the large artery of each member, over which the pressure of the cushion should be made. The tourniquet here is of the simplest kind, and what can be readily applied by any bye-stander.

This is the suggestion of Sir William Blizard, of whose friendship and attention, at an early period of life, the author begs leave to make this public acknowledgment.

PLATE V.—To face p. 295.

This plate is intended merely to exhibit a complete view of the trepaning instruments, which no Navy Surgeon should be without.

PLATE VI.—To face p. 303.

This is a full set of amputating instruments, and is only placed here to point out the necessity for having them complete.

PLATE VII.—To face p. 304.

This plate is a delineation of the splints commonly used in fractures of the extremities, and which are ordered by Government in the list of Naval Instruments.

In forming the above set of plates, the Author is much indebted to Mr. John Grice, an ingenious artist, instrument-maker to the London Hospital, and truss-maker to the Society for the Relief of the Ruptured Poor, for the best form of the amputation instruments, the truss, and splints. By applying to him, the young Surgeon will not only have instruments of the best and latest construction, but he will have the farther advantage of having the principles of their use explained, in the most correct and scientific manner.

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